P
Mad
W

Winnipeg. Health Dept

CITY OF WINNIPEG

REPORT
OF THE
CITY HEALTH DEPARTMENT

LIBRARY
APR 20 1934
UNIVERSITY OF TORONTO

FOR THE YEAR ENDING
31st DECEMBER
1920

CITY OF WINNIPEG

REPORT
of the
City Health Department

FOR THE YEAR ENDING
31st DECEMBER
1920

COMMITTEE ON HEALTH
1920

Alderman E. Robinson, Chairman.

Alderman J. G. Sullivan.

Alderman A. H. Pulford.

Alderman Geo. Fisher.

Alderman A. A. Heaps.

Alderman J. Blumberg.

Alderman H. Jones.

His Worship Mayor Gray
(ex-officio member).

STAFF

Medical Health Officer

A. J. Douglas, M.D.

Laboratory

Bacteriologist—J. H. Leeming, M.D.
Assistant—Miss M. Wilson.
Laboratory Boy—H. Robinson.

District Physicians

North—W. Turnbull, M.D.
South—O. C. Dorman, M.D.

Dental Clinic

Dr. N. W. Snider, Dentist.

Sanitary Inspections and Scavenging Supervision Division

Chief Inspector—J. H. Pearson.
Tenement Inspector—A. Officer.
Inspector—S. Scheving.
“ H. Olson.
“ D. Braschuk.
“ B. C. Brough.
“ J. McHardy.
“ H. B. Weston.
“ J. B. Hamilton.
Inspectors' Clerk—W. Hanby.
Clerk—G. Duffield.
Supt. of Scavenging—J. W. Stewart.
Stables Foreman—R. J. Buckingham.

Asst. Chief—E. W. J. Hague.
Smoke Inspector—P. Pickering.
Inspector—C. W. Chisholm.
“ O. S. Oliver.
“ J. Foggie.
“ R. McQuillan.
“ A. Aitken.
“ A. Barclay.
“ F. C. Austin.
Interpreter-Inspector—J. Miller.
Asst. on Scavenging Division—
Inspector D. Little.

Communicable Diseases Division

Chief Inspector—W. J. T. Watt.
Inspector—G. Hanby.
“ C. H. Hargrave.
“ H. H. Marshall.
“ H. G. Triggs.
“ A. Paull.*
Temporary Inspector—J. Shepherd.
* On Military Service.

Tuberculosis Nurse—Miss K. Vanetta.
“ “ Miss B. M. Gray.
“ “ Miss C. S. Gillies.
“ “ Miss A. G. Luke.
Temporary Tuberculosis Nurse—
Miss L. N. Grey.
Record Clerk—Miss W. G. Aldham.

Smallpox Hospital

Caretakers—Mr. & Mrs. P. Bennett.

Division of Records and Statistics and Bureau of Child Hygiene

Secretary and Manager, Bureau of
Child Hygiene—A. G. Lawrence.
Stenographer—Miss L. Gransden.

Stenographer—Miss M. Ryan.
“ Miss D. Steuart.
Clerk—G. Moore.

Babies' Milk Depot

Attending Physician—R. F. Rorke, M.D.
“ “ C. C. Field, M.D.
Dietitian—Miss A. Graham.
Asst. Dispenser—Mrs. A. Johnson.
Assistant—Miss B. Baxter.
“ Miss M. McNaughton.
“ Miss S. McCallum.
Caretakers—P. Broadley.
“ Mrs. P. Broadley.

Child Welfare Nurses

Nurse—Miss M. M. Wonnacott.
“ Miss A. J. Attrill.
“ Miss M. McCallum.
“ Miss L. Spratt.
“ Miss C. Maddin.
“ Miss P. Adair.
“ Miss A. Moore.
“ Miss C. Munro.
“ Miss L. A. Schwalm.
“ Miss M. Cuffe.
“ Miss E. A. Bennett.
“ Miss M. Harper.
“ Miss F. K. Whittick.
“ Miss M. W. Macrae.

Dairy Division

Chief Inspector—E. C. Brown.
Inspector—F. Hudson.
Creameries Inspector—F. Lutley.
Veterinary Inspector—E. S. Bowman, V.S.

Food Division

Chief Inspector—A. Rigby.
Inspector—A. W. Foote.
“ G. R. Mines.

REPORT OF THE MEDICAL HEALTH OFFICER

City Health Department,
Winnipeg, Man., April 19, 1921.

Chairman and Members of the Committee on Health.

Gentlemen:

I have the honor to submit for your consideration the report of the Health Department for the year 1920. This report includes the reports of the various sub-heads of the Department, together with a statement of the cost of the year's work.

Statistics

The number of deaths, excluding stillbirths, was 2,270. Assuming the population to be 192,571 (City Assessor's figures), which we feel is a conservative estimate, this gives a death rate of 11.79 per 1,000. This rate is very slightly higher than that of the previous year, which was 11.49, but is a fair average compared with former years and ranks high among cities of our class on this Continent.

The number of deaths in children under one year of age was 625. giving a mortality rate of 101.2 per 1,000 living births. This is a reduction of 5.6 points over the rate for 1919, but this rate is still too high and is capable of very material reduction. A number of factors have contributed during the past couple of years to prevent the extensive reduction in infantile mortality. Possibly most important among these has been the changing environmental conditions of certain portions of our population. These conditions and others are referred to in the report of the Statistician.

The Department is putting forward every effort through the various agencies at its command, to assist in conserving child life. We wish we had a large enough staff of nurses to keep in touch with every baby on our list until it reaches school age and comes under the care of the school physicians and nurses.

The number of births, excluding stillbirths, was 6,174, giving a birth rate of 32.06 per 1,000. Last year the rate was 28.65.

Financial Statement for the Year 1920

Departmental Expenditures

Administration and statistics		$ 12,769.08
Bacteriological Laboratory		7,538.93
Treatment and Prevention of Communicable Diseases:—		
Acute communicable diseases	$15,659.73	
Tuberculosis	8,575.50	
Smallpox	11,312.22	
Epidemic Influenza	2,095.61	
Automobile Service	2,474.81	
		40,117.87
Sanitary inspections and scavenging supervision		49,275.94
Food inspection		9,564.93
Dairy inspection		7,742.81
Child Welfare:—		
Babies' Milk Depot operating	$24,069.09	
Visiting nurses	20,140.60	
		44,209.69
Medical Relief:—		
District physicians	$ 2,284.11	
Dental clinic	1,410.25	
		3,694.36
Gross departmental expenditure		$174,913.61

Revenue

(Credited to the City's Revenue Account)

Police court fines and costs	$ 1,318.40	
Fees for fumigation	1,338.75	
Fees for laboratory work	416.00	
Sale of infants' feedings at Milk Depot	5,290.10	
		8,363.25
Net departmental expenditure		$166,550.46

Cost per Capita

(Population, 192,571)

Gross departmental expenditure per capita	90.8
Net departmental expenditure per capita	86.5

Refuse Collection and Disposal

Collection of refuse—scavenging		$198,654.36
Disposal of Refuse:—		
Nuisance grounds operating	$ 6,321.97	
Crematory No. 1 operating	80.89	
Crematory No. 1 maintenance	.93	
Incinerator No. 2 operating—(credit)	142.50	
Incinerator No. 2 maintenance	138.38	
Incinerator No. 3 operating	12,090.06	
Incinerator No. 3 maintenance	3,505.35	
		22,280.08
Total		$220,934.44
Revenue collected for destruction of mercantile refuse and sale of horse hides		2,870.96
Net expenditure for refuse collection and disposal		$218,063.48

Cost per Capita

(Population, 192,571)

Gross cost of collection and disposal of refuse per capita	$1.15
Net cost of collection and disposal of refuse per capita	1.13

Typhoid Fever

Fifty-six cases of typhoid fever were reported with 11 deaths, giving a rate of 5.6 per 100,000 population. In 1919 there were 150 cases and the rate was 10.3. Mortality rate per 100 cases—1920, 19.6; 1919, 12.7.

The typhoid situation for the past year presents a situation without a precedent for Winnipeg. Not a single death resulted from a case of the disease contracted within the City. There were 39 cases either in non-residents who were brought to the City for treatment, or in residents who acquired typhoid while travelling. Of the eleven deaths, seven were sent to hospitals from outside points for treatment and four were residents taken ill after returning from journeys. Our corrected death rate, therefore, is zero; surely a subject for congratulation. In connection with these deaths in patients from out of town, we cannot too strongly deprecate the practice of sending people suffering from typhoid fever, long distances to our hospitals. It seems very evident, not only from the experience of 1920, but from that of other years, that such a proceeding seriously minimizes the patient's chance of recovery. These cases should be cared for where they are taken ill, if this be at all possible, and not subjected to the strain and worry incident to a long railway journey. Moving such patients saps their strength and often encourages complications.

The seventeen cases having their origin in the City were scattering in character and were not related one to the other. They were probably due to infection from an unrecognized carrier. Seventeen cases originating in a city of nearly 200,000 population, during the period of a year, is a very satisfactory showing.

Smallpox

The total number of cases recorded was 37, with no deaths. Of this number, nine were unrecognized, and were discovered through working backward from known cases. All but three of the patients were unvaccinated. The three vaccinated ones were aged respectively—65, 52 and 36. These individuals all had faint marks and gave a history of vaccination in infancy or childhood.

It would appear that we are still very far from putting smallpox where it belongs, among extinct diseases, and the reason is neglect of vaccination. There is at the present time a very considerable proportion of our population unvaccinated and this in spite of the effort put forth to get the school children vaccinated, and the facilities for free vaccination afforded at all times by the Department. Since the advent of the mild form of smallpox, which has prevailed for the past couple of decades, and which is rarely attended with a fatality, the public seems to have adopted a tolerant view towards smallpox which formerly did not exist. There seems to be an impression that smallpox is a trivial complaint, really less serious than an ordinary vaccination and that the old fashioned type of the disease has gone forever. People should be made to appreciate the fact that epidemic diseases change their character; some outbreaks being severe, others mild. There is no guarantee that the mild type of smallpox will continue indefinitely. The disease may revert any time to the type which killed and disfigured so many people in the past and, should this type get a foothold in any community containing a large number of unvaccinated persons, many deaths and much suffering will inevitably result. Death from smallpox is by no means an impossible proposition yet, but there is no contingency easier to escape, and the way lies through vaccination.

Chickenpox

Four hundred and twenty-one cases were reported against 456 in 1919. Of course there were no deaths but the importance of notifying this disease promptly should never be lost sight of, owing to the possibility of smallpox being taken for it. This is still a fairly frequent occurrence.

Whooping Cough

The total number of cases reported was 440; deaths 24. Rate per 100,000 population—12.5; rate per 100 cases—5.45. In 1919 there were 539 cases and 19 deaths; rates 10.4 and 3.5 respectively.

There are still too many deaths from whooping couch and measures for control do not seem to accomplish as much as they should. A hopeful sign during the past two years has been an increased appreciation on the part of the public of the seriousness of this disease.

Mumps

One hundred and twenty-six cases were reported during the year, the majority occurring among school children in a district in the northern part of the City.

Measles

The total number of cases reported was 3,736; deaths 33. Death rate per 100,000 population—17.1; per 100 cases —.085.

In 1919, ninety-one cases and two deaths were recorded, giving a rate of 1.1 per 100,000 and 2.2 per 100 cases.

This is the highest number of cases we have on record for any year and the lowest mortality rate.

The occurrence of this outbreak was rather a surprise as, except during 1919, measles has prevailed rather extensively for the past five years. It would appear that a large number of susceptible individuals were left over from previous years. The outbreak began in February and reached its peak in April, subsiding very rapidly after May.

Efforts at control were put forth—isolation of cases, observation of contacts, educational propaganda, etc., which seemed to meet with the usual unsatisfactory results. This disease in Winnipeg at least, when once its starts an epidemic course seems uninfluenced by preventive measures to any appreciable extent. Its great potentialities for rapid spread and the fact that it is infectious before the rash appears, largely accounts for this. During this outbreak the school nurses and teachers were of great assistance to the Department and enabled us to locate many cases which we would not otherwise have heard of. The only satisfactory feature of the situation was the low fatality which obtained.

Scarlet Fever

The total number of cases was 2,697; deaths 76. In 1919 the number of cases was 1,148; deaths 22. The death rate per 100,000 population was 39.5 in 1920 and 12.0 in 1919. The mortality rates per 100 cases—2.8 and 1.9.

	January	February	March	April	May	June	July	August	September	October	November	December	Totals
Cases	340	308	317	345	298	216	140	98	133	153	190	159	2697
Secondary cases	61	58	39	58	27	16	20	12	12	19	25	28	375
Return cases	11	9	5	6	6	8	14	4	4	2	1	4	75
Unrecognized cases	8	25	12	6	7	6	3	2	5	12	12	4	101
Outside cases	2	15	4	2	4	3	2	16	6	3	10	3	70
Institutional cases	41	14	8	14	8	10	3	2	2	2	9	1	114
Military cases			2		2								4

The above table gives classification of the cases which has some interest in showing the large number of secondary cases in homes, return cases after a patient is discharged from hospital and unrecognized cases which give an indication of the difficulty experienced in getting mild cases notified, and the very considerable number sent to our hospital from outside the City.

The control of scarlet fever has been a most difficult problem throughout the year. The mild type which prevailed complicated the situation and cases were being continually missed.

The early months of the year provided the greatest number of cases, these being a continuation of the outbreak which began in the latter part of 1919. Contact played almost the whole part in spread.

There was in interesting and well-marked outbreak due to another source. In the month of April a dance was held in an hotel and a week later cases of scarlet fever began to occur among persons who attended. The first case which originated from this source was notified on April 17th and notifications continued to come in until April 26th, during which period 50 cases were reported. Three weeks previous to this outbreak, two guests were removed from this hotel suffering from scarlet fever. No connecting link could be established between these cases and those developing later. The staff of the hotel, particularly those having to do with the handling of food, were carefully gone over with negative results. Milk, cream, ice cream, salads and other articles of food used at supper, were followed to their sources, without finding anything which could account for the outbreak. There is not much doubt, however, that some article of food consumed at this dance was the vehicle which carried the infection, the chances are that whatever the article was, it was infected within the hotel, either by an individual suffering from, or recovering from, an unrecognized attack of scarlet fever, or by a carrier with no symptoms of the disease. It is of interest to note that this outbreak had its origin in a place where every precaution in the way of sterilization of eating utensils, cleanliness of methods and provision of the best class of food is constantly carried out. The cream and milk supply of this hotel was unpasteurized and the ice cream was made from unpasteurized cream. There were, however, no other cases on the delivery route of the man supplying and none at the dairy itself. Of the fifty cases recorded, three were members of the hotel staff. The remaining 47 were largely people living outside the hotel who attended the dance on April 15th.

The latter half of the year has shown a decided improvement in the scarlet fever situation and we confidently look forward to much lessened prevalence throughout 1921.

We were able to hospitalize all cases which required this. One thousand, nine hundred and forty-five were so dealt with and we feel that by so doing we were able to limit spread in marked degree from the many cases found in premises where proper provision for isolation could not be carried out.

Diphtheria

Eleven hundred and sixty-five cases and 84 deaths were reported during the year, against 907 cases and 46 deaths during 1919. Death rates—1920, 43.6; 1919, 25.1. Mortality rates per 100 cases—7.20 and 5.1.

	January	February	March	April	May	June	July	August	September	October	November	December	1920 Totals	1919 Totals
Diphtheria Cases	89	79	67	60	71	61	91	96	91	171	159	130	1165	907
Diphtheria Carriers	3	6	4	2	10	6	1	5	4	85	61	15	202	102
Secondary Cases	10	4	2	2	7		11	10	6	14	11	13	90	82
Return Cases	4	2			1					...	3	3	13	10
Unrecognized Cases	1	2	1	3	1		1		4	20	6	3	42	14
Outside Cases	5	5	9	6	10	1	4	13	4	12	14	13	96	54
Military Cases	1	1	1	1	1								5	20
Institutional Cases	3	7	5	3	6	9	6	11	2	9	2	4	67	43
Institutional Carriers			1		1						2		2	15

It may be said of 1920 as was said of 1919 that the last four months of the year contributed half the total number of cases.

This disease has been unduly prevalent since 1916. The Winter months, when opportunities for personal contact are greatest, seem to provide enough cases to carry infection for the rest of the year.

The number of carriers recorded was double that of 1919, and were largely got at through the activities of the school nurses taking cultures from the children in a number of schools where cases of mild sore throats were reported. From these schools some children developed the disease in a virulent form. In spite of a great amount of work expended on diphtheria control, it still remains altogether too prevalent, and many people still die from it who should not do so. The neglected sore throat is responsible, time after time, for a death which could certainly have been prevented if parents and others having children in their care could be got to appreciate the possibility of danger in these cases. Too many people do not seem to be aware that every hour that goes by with this disease untreated, lessens the patient's chance for recovery. A disease which can be positively diagnosed and almost certainly cured if taken early should not furnish so many death certificates. The remedy lies in better co-operation on the part of the public and in immunization of susceptibles by toxin Antitoxin. We would like to get the latter carried out on a large scale among our child population. The results attained by this means in other cities have been most gratifying, indeed it seems to furnish the only solution of the diphtheria problem.

A start has been made on this work in Winnipeg and we hope to carry it on.

Antitoxin was supplied the Department by the Provincial Board of Health as in other years, no charge being made for persons unable to pay; to others it was supplied at cost. Four million and seventy-eight thousand units were distributed and $530.50 was paid.

Antitoxin Used During 1920

	AMOUNT					
Month	10M.	5M.	3M.	2M.	1M.	Cash Collected
January	6	23	3	17	18– 236M	$27.50
February	4	44	5	15	25– 330M	43.50
March	.	27	. .	7	13– 162M	24.50
April	2	27	1	3	18– 176M	18.50
May		57	2	4	16– 345M	27.50
June	.	31	1	3	9– 153M	27.25
July	. .	41	6	1	15 – 240M	44.75
August		50	3	14	27– 314M	44.50
September	1	51	6	7	31– 328M	43.75
October	. .	108	6	27	49– 661M	85.25
November	5	87	13	7	36– 574M	90.50
December	.	94	12	14	25– 559M	53.00
Totals	18	640	58	119	282–4,078,000	$530.50

Present arrangements proved very satisfactory and physicians have availed themselves of this supply as is evidenced by the amount purchased. We feel a step in advance would be to distribute all the antitoxin given out by the Department, at the City's expense. By so doing, cases which are sometimes held over awaiting laboratory findings, or being seen later by the physicians, could have the benefit of this treatment without delay.

Influenza

Cases reported during the year totalled 426; deaths 91. In 1919, 2,342 cases were reported with 301 deaths. Rates respectively per 100,000 population—47.2 and 164.1. Mortality rates—21.1 and 12.8.

Four hundred and four cases of the total, occurred during the first three months of the year, when the disease seemed to take on renewed vigor; after this it rapidly decreased. Doubtless many more cases occurred than were notified. Apparently it was largely the severe type which was reported, the mild cases being unrecognized and so uncontrolled.

During the greater part of the year, influenza as a health problem ceased to cause trouble.

Tuberculosis

The number of cases of tuberculosis of the lungs recorded was 217; deaths 138, against 315 cases and 132 deaths in 1919. Mortality rate per 100,000 population—71.7 and 71.9 respectively.

Tuberculosis of all forms—178 deaths against 177 in 1919. Rates per 100,000 population—1920, 90.3; 1919, 96.5

The cases reported, viz. 217, are summarized as follows:

	1920	1919	1918
Winnipeg General Hospital T.B. Clinic	58	65	73
King Edward Memorial Hospital	44	91	86
Ninette Sanatorium	25	48	41
City Laboratory	16	26	44
Doctors and other sources	41	40	72
Death registration	28	38	26
Out of City cases	5	7	3
Totals	217	315	345

An analysis of the above table shows a decline in cases reported. Just why this should be is difficult to explain, in fact no satisfactory reason can be given at the present time. We are of the opinion that, with death rates practically the same, notifications should be greater in number.

The same agencies for tuberculosis control, functioned last year as formerly—the clinic, the hospitals, the Anti-Tuberculosis Society and the Department's nurses.

A great deal of good work was accomplished during the year and our rate for this disease is a very low one. It is still capable of great reduction and one of the ways in which this will be accomplished is by pasteurization of all milk from cows not known to be free from tuberculosis. One of the regrettable features of the past year was death registration affording the first intimation the Department had of the existence of 28 cases.

Encephalitis Lethargica

The outbreak of this mysterious disease which commenced in November, 1919, subsided during the early months of the year. Occasional cases and deaths were recorded throughout the year, excepting in the months of August and September. As was the case last year, no two cases investigated by the Department occurred in any home, and contact infection was not demonstrable in any instance.

Thirty-four cases were reported with 23 deaths, against 70 cases and 25 deaths in 1919.

Poliomyelitis

During the year 47 cases of this disease were notified with 12 deaths. This is the largest number of cases we have recorded for any one year. One case occurred in January, the next in August, two followed in September, thirty-three in October, nine in November and one in December.

Age incidence was as follows:—

Under 1 year	3 cases	No deaths
Between 1 and 2 years	7 "	3 "
" 2 " 3 "	8 "	1 death
" 3 " 4 "	5 "	2 deaths
" 4 " 5 "	9 "	1 death
" 5 " 6 "	3 "	3 deaths
" 7 " 8 "	4 "	No deaths
" 8 " 9 "	1 case	"
" 9 " 10 "	2 cases	"
Age not recorded	2 "	1 death
Over 21 years	3 "	1 "
Totals	47 cases	12 deaths

Four secondary cases occurred in three families, all four dying. It is to be noted that in previous outbreaks of this disease we have no record of contact cases. We are unable to give any satisfactory explanation of the increased incidence during the month of October, practically all the cases gave no history of exposure and were not associated one with the other in any way.

The usual precautions of isolation and concurrent disinfection were carried out.

Venereal Diseases

The venereal disease clinic conducted by the Provincial Board of Health continued its excellent work throughout the year. During this period, 397 cases of Gonorrhoea, 719 cases of Syphilis and 6 cases of Syphilis and Gonorrhoea, were treated at the clinics. The Board of Health is to be congratulated on making this disease notifiable and for the energetic manner in which the situation is being dealt with.

Much remains to be done, particularly as regards education of the public as to the very serious and far reaching effects of these diseases.

The details of the Act for the prevention of venereal diseases were given in last year's report.

Provincial Board of Health

Report on Venereal Disease Clinics in Manitoba for the Year 1920

Number of cases of Gonorrhea treated at Clinics	397
Number of cases of Syphilis treated at Clinics	719
Number of cases of Syphilis and Gonorrhoea treated at Clinics	6
Total	1,122

Gonorrhoea—		
Adult, Male	334	
Adult, Female	46	
Children (0-12 years)—		
Male	5	
Female	12	
	397	397
Syphilis—		
Adult, Male	523	
Adult, Female	166	
Children (0-12 years)—		
Male	16	
Female	14	
	719	719
Syphilis and Gonorrhoea—		
Adult, Male	1	
Adult, Female	5	
	6	6
		1,122

Provincial Board of Health

Sociological Data Relative to Reported Cases of Venereal Diseases for the Year 1920

GONORRHOEA

Number of cases tabulated		1,084
Sex –		
Male		965
Female		119
		1,084
Marital State –		
Married, Male	241	
Single, Male	698	
Widowed, Male	17	
Divorced, Male	4	
	960	960
Married, Female	50	
Single, Female	55	
Widowed, Female	2	
Divorced, Female	1	
	108	108
Children—		
Male, under 12	5	
Female, under 12	11	
	16	16
		1,084

SYPHILIS

Number of cases tabulated		957
Sex –		
Male		718
Female		239
		957
Marital State—		
Married, Male	248	
Single, Male	445	
Widowed, Male	8	
Divorced, Male	3	
	704	704
Married, Female	151	
Single, Female	64	
Widowed, Female	6	
Divorced, Female	3	
	224	224

Children—		
Male, under 12	14	
Female, under 12	15	
	29	29
		957

SYPHILIS AND GONORRHOEA

Number of cases tabulated	16	
Sex—		
Male		11
Female		5
		16
Marital State—		
Married, Male	2	
Single, Male	8	
Widowed, Male	1	
	11	11
Married, Female	1	
Single, Female	4	
	5	5
		16
Total Number of Cases Tabulated—		
Gonorrhoea		1,084
Syphilis		957
Gonorrhoea and Syphilis		16
		2,057

Dental Clinic

The dental clinic maintained by the Department at the General Hospital has been in operation throughout the year. A report of this is included further on.

In addition to this clinic, the School Board maintains its own dentists for attendance on school children, these working in connection with the Board's school physicians and nurses.

Medical Relief

The total number of persons given free medical relief was 693. Of this number, 233 received treatment at the office of the Health Department and 460 were visited at their homes. The preceding year's total was 829; 368 were attended at the office and 461 visited by the district physicians.

The number of vaccinations performed during the year totalled 6,824, an increase of 5,452 over the year 1919.

Legislation Enacted

Province of Manitoba. An Amendment to Sec. 700 of the Winnipeg Charter "for preventing licensing, or regulating the keeping of domestic animals such as horses, cattle, sheep, goats, dogs, rabbits, guinea pigs, ducks, turkeys, geese, hens, pigeons or other poultry and of any animals other than domestic animals, whether such animals are kept for purposes of gain or reward or otherwise."

This clause is a revision of a previous section and was required for the better regulation of the keeping of animals.

Regulations of the Provincial Board of Health respecting Slaughter Houses. These are a revision of the Regulations of Oct., 1917. The provision of Sec. 16, requiring that "the yards of such premises **other than where cattle are kept** shall be paved and drained" seems to be peculiar. If any yards attached to an abattoir require paving and draining it is surely those where cattle **are kept.** Some of the other sections, notably No. 19 and No. 22, should be rewritten as there is evidently either some mistake in the wording, or possibly in the printing, of these sections.

By-laws of the City of Winnipeg. By-law No. 9947, an amendment to By-law No. 4274 (Health By-law), permitting the keeping of not more than two milch goats by any person in stables, sheds, etc., properly constructed and situated at least 30 feet from the nearest dwelling.

This by-law was passed on representations from the Milch Goat Ass'n., that large numbers of people would keep goats if the restrictions were modified and that great good would result if goat's milk were more generally used. So far the goats have not materialized, as there were only five goats to be found kept within the City Limits when the Department took a stable census last September.

By-law 9985. A by-law for better regulating the keeping of poultry within the City. Chicken pens must be situated at least 10 feet from any occupied building on the same lot, 20 feet from any occupied building on any adjacent lot, and 25 feet from any street except in the case of corner lots, when the required distance is 25 feet from the front lot line and 10 feet from any side or rear street. No poultry may be kept on a lot less than 25 feet wide, unless it is over 100 feet deep. All buildings and runs are to be kept in a cleanly condition. Pigeons are to be confined.

By-law 9984, respecting Poultry Slaughter Houses. This by-law was found to be necessary on account of the large numbers of persons engaging in the business of slaughtering poultry for sale in very unsuitable premises.

The by-law requires that every firm engaged in such business must obtain a permit from the Health Officer and that such permit shall not be given unless and until the premises and all equipment comply in every respect with the provisions of the by-law. The same distances are embodied as in the Poultry Keeping by-law just discussed. The killing rooms are to be not less than 10 feet square and 8 feet high with windows equal to 1/10th the area of the floor, and both windows and storm-sashes made to open. The walls are to be of smooth surface and the floor of concrete. Sewer and water connections and plumbing fixtures for the use of the employees are required. Proper cooling and storage rooms are insisted upon. Provision is also made for the prevention of overcrowding of birds, and nuisances from noise, the construction of storage cages, the removal of diseased birds, and strict cleanliness at all times. Permits may be revoked by the Medical Health Officer for due cause.

By-law No. 9974, being a Revised and Amended Plumbing and Drainage By-law. The by-law contains a number of new sections calculated to ensure better sanitation in buildings. This by-law is administered by the Plumbing and Sewer Department. It applies more particularly to new plumbing, although when additions or alterations are made to the plumbing in existing buildings the owners may then be required to make the whole of the plumbing and drainage system comply with the provisions of the new by-law.

Legislation Required

Of the subjects mentioned in my last report as requiring attention probably one of the most pressing at the present time is a Charter Amendment followed by a by-law dealing with the extermination of rats and we have recently submitted to your Committee suggested amendments both to the Public Health Act and the City Charter. The former, taken from the New Zealand Public Health 1920 Act, reads as follows: "A nuisance shall be deemed to exist . . . . . . when any premises (including any accumulation or deposit thereon) are in such a state as to harbour or to be likely to harbour rats or other vermin." The Charter Amendment is designed to permit the City to pass by-laws dealing not only with the extermination of rats, but also of other vermin such as bed-bugs, cockroaches, lice, etc., which are a frequent cause of complaint. In the case of rats it is intended that any such by-law may require the rat-proofing of premises infested by rats ,and also the keeping of garbage and other food of rats in metallic vessels.

Such legislation would be in line with the more advanced legislation on this subject of other countries including the "Rats and Mice Destruction Act" (England), 1919, and the laws of several American States.

If anything is to be done to rectify the present overcrowding of families into one-family dwellings it will be necessary to give us some additional legislation dealing with the subject. Hundreds of such houses can never be made to comply strictly with the Tenement provisions of the Building By-law although occupied as tenements. Owing to deterioration of the districts in which they are found it is not likely that they will ever again be occupied as single family dwellings. They are not at present suitable for occupation by more than one family, but could be made reasonably fit by suitable alterations. What is wanted therefore is a modification of the tenement laws which would permit of many of such houses being improved and fitted up for tenement use under proper restrictions.

Installation of Plumbing

Although not many new sewers were constructed during 1920 we are able to report a net decrease of **41** in the number of outside privies in use, and this in spite of the fact that a number of new houses were built on streets without sewers. The summary is as follows:—

December 31, 1919.		December 31, 1920.	
Earth pits in use	6	Earth pits in use	1
Brick pits in use	438	Brick pits in use	402
Total	444	Total	403

Net decrease 41.

Chemical Closets, 6 only.

Since 1905 the reduction of outside closets has been as follows:—

	Box. Closets	Earth Pits	Brick Pits	Total
June 30, 1905	6.153	186		6.339
December 31, 1905	3.182	80	1.020	4.912
June 30, 1906	2.255	747	1.325	4.327
December 31, 1906	1.105	662	1.626	3.393
December 31, 1907	80	201	1.535	1.816
December 31, 1908	25	108	1.492	1.625
December 31, 1909	..	53	1.432	1.485
December 31, 1910		52	1.300	1.352
December 31, 1911		47	1.171	1.218
December 31, 1912		31	1.014	1.045
December 31, 1913		38	838	877
December 31, 1914		18	648	666
December 31, 1915		14	504	518
December 31, 1916		9	447	456
December 31, 1917		11	442	433
December 31, 1918		5	421	426
December 31, 1919		6	438	444
December 31, 1920		1	402	403

Extension of Sewers and Water Mains

The table given above indicates pretty clearly that the policy of the City in this important matter of constructing sewers and water mains has been most progressive.

The following list which has been sent to the Committees in charge of these public improvements may be interesting in this connection:—

LIST OF STREETS WITH FIVE OR MORE HOUSES REQUIRING SEWER OR WATER MAINS

FORT ROUGE

Street	Block	Houses	Total	Remarks
Centennial St	*Kingsway to Haskins	4		
Centennial St	*Haskins to Jackson	12		
Centennial St	Jackson to Lennox	1		
Centennial St	Lennox to Grant	1	18	
Borebank St	Academy Road to Kingsway	3		
Borebank St	Kingsway to Haskins	2		
Borebank St	Haskins to Jackson	1	6	
Mulvey Ave	Harrow to Guelph	2		
Mulvey Ave	Guelph to Wilton	2		
Mulvey Ave	Wilton to Rockwood	1	5	
Lorette Ave	C.N.R. to Daly St	1		
Lorette Ave	*Wentworth to Stafford	5		
Lorette Ave	Stafford to Harrow	4		
Lorette Ave	Harrow to Guelph	1	11	
Dudley Ave	Stafford to Harrow	2		
Dudley Ave	Rockwood to Nathaniel	3	5	
Scotland Ave	Harrow to Guelph	1		
Scotland Ave	Guelph to Wilton	2		
Scotland Ave	Rockwood to Cambridge	3	6	Shacks
Weatherdon Ave	Pembina Road to Aynsley	1		
Weatherdon Ave	Aynsley to Lilac	1		
Weatherdon Ave	Lilac to Wentworth	2		
Weatherdon Ave	*Wentworth to Stafford	8		Four new.
Weatherdon Ave	*Stafford to Harrow	4		Two new.
Weatherdon Ave	Harrow to Guelph	2		
Weatherdon Ave	Rockwood to Cambridge	2	20	Two new.
Carter Ave	*Aynsely to Lilac	6		
Carter Ave	Harrow to Guelph	1	7	
Hector Ave	Aynsley to Lilac	2		
Hector Ave	Lilac to Wentworth	2		
Hector Ave	Wentworth to Stafford	2		
Hector Ave	Stafford to Harrow	1	7	
Ebby Ave	C.N.R. to Pembina Road	4		
Ebby Ave	Pembina Road to Wentworth	3	7	New

Street	Block	Houses	Total	Remarks
Parker Ave	Pembina Road to C.N.R	1		
Parker Ave	C.N.R. to Rockwood	4		
Parker Ave	Rockwood to Thurso	3		
Parker Ave	Thurso to Nathaniel	5	13	
Pembina Road	(Scattered)	7	7	
Cambridge St	Haskins to Jackson	3		
Cambridge St	South of Jackson	9	12	(Scattered.)
	Total		124	
On streets with less than 5 houses, or on streets with Sewer and Water Mains but where plumbing notices have been served			71	
	Total		195	

WEST END

(Assiniboine Ave. to Higgins Ave.)

Street	Block	Houses	Total	Remarks
Dominion St	St. Matthews to Ellice	1		
Dominion St	Yarwood to Notre Dame	4	5	Water, no sewer.
Dundas St	Portage to Ellice	4		
Dundas St	Sargent to Wellington	1	5	
Wall St	Wolever to St. Matthews	3		Sewer, no water.
Wall St	St. Matthews to Ellice	3		Sewer but no water main
Wall St	Ellice to Sargent	2		Water, no sewer.
Wall St	Sargent to Wellington	1		
Wall St	Wellington to Richard	1		
Wall St	Richard to Notre Dame	2	12	
Keewatin St	*Logan to C.P.R. Main Line	5	5	Water, no sewer.
Erin St	Wellington to Richard	1		
Erin St	*Richard to Notre Dame	5	6	Water, no sewer.
Spruce St	Ellice to Sargent	3		
Spruce St	Sargent to Notre Dame	3	6	Water, no sewer.

Street	Block	Houses	Total	Remarks
Centre St (Tylehurst)	Portage to Ellice	2		Water main ordered, Sargent to S. line of lot 307, plan 153, D.G.S. 42, St. James, Sept. 29, '19. Also to 112 ft. further south. Nov. 10, '19. Sewer ordered Sargent to a point 230 ft. North, Nov. 10, '19. (Constructed.)
Centre St	Ellice to Sargent	3		
Centre St	Sargent to Notre Dame	1	6	
	Total		45	
On streets with less than 5 houses			40	
	Total		85	

(C.P.R. Main Line to Northern City Limits.)

Street	Block	Houses	Total	Remarks
Atlantic Ave	*C.P.R. Beach Track to McPhillips St	12		Water main laid for about 200 feet of this.
Atlantic Ave	McPhillips to Fife	2	14	
Boyd Ave	Artillery to Beach Track	1		
Boyd Ave	Beach Track to Battery	2		
Boyd Ave	Battery to Prince	3		
Boyd Ave	Prince to McPhillips	1	7	
Burrows Ave	McPhillips to Keewatin	5	5	Water to 475 feet west of McPhillips. No sewer.
Kitchener St	Cor. Keewatin St	5	5	Dairies.
Minnigaffe St	*Mountain to Church	7	7	
	Total		38	
On streets with less than 5 houses			48	
	Total		86	

ELMWOOD

Street	Block	Houses	Total	Remarks
Herbert Ave	*Foster to Green	7		Water for part of this distance.
Herbert Ave	Green to Kent	3		
Herbert Ave	Kent to Bird's Hill Road	2	12	
Sandhurst Ave	Gray to Molson Br C.P.R	1		
Sandhurst Ave	*C.P.R. Molson Br. to Kent	6	7	Water, no sewer.
Union Ave	Kelvin to Brazier	3		
Union Ave	Gray to Green	2	5	Water, no sewer
Beach Ave	Gray to C.P.R	2		
Beach Ave	C.P.R. to Cameron	3		
Beach Ave	Cameron to Kent	1		

Street	Block	Houses	Total	Remarks
Beach Ave	Kent to Bird's Hill Road	4	10	
	Total		34	
On streets with less than 5 houses			10	
	Total		44	

SUMMARY

Fort Rouge	124
Assiniboine River to Higgins Ave	45
C.P.R. Main Line to Northern Limits	38
Elmwood	34
	241
On streets with less than 5 houses	169
Total houses in City without plumbing	410
Total houses in City, (approximately)	30,350

N.B.—We have marked with an asterisk those streets where the construction of Sewers and Water Mains seems to be most desirable or practicable.

Housing

The high cost of building commented on in our last report continued during the year and very little was done by private enterprise in the way of constructing the additional dwellings so urgently required. The Building Inspector's report for 1920 shows that 271 permits were issued for dwellings. Of these, 133 permits were those for houses built under the supervision of the Winnipeg Housing Commission. Not all of these houses were completed by Dec. 31. The large amount of building done in the municipalities immediately surrounding the City, a great many of which houses must be occupied by persons earning their living in Winnipeg, has materially helped. The Housing Commission's Specifications for dwellings require that extra care be taken in the selection of materials and in the methods of construction in order to conserve heat. We sincerely trust that the work of the Commission will be continued and even accelerated during the coming year. We believe that the patrons of the scheme get a better house than is possible or at least probable when the houses are built for speculation. The Commission is dealing with a most difficult subject—the providing of new houses under most adverse financial conditions—in an extremely practical manner.

At the same time side by side with this new construction and even with some 500 vacant houses in the City at the present time (Dec.) we find the objectionable crowding up of families into one-family houses still persists as strongly as ever.

The majority of these people have not the necessary money—15% of the total value—to make the initial payment on a house. What they need is warm small cottages at a moderate rental and it is apparently impossible to provide such an article under present conditions. We know, however, that sufficient public interest has now been aroused to ensure that the matter will not be lost sight of.

Health Bulletins

The index to the subject of the various matters written about in the Department Bulletin during the year is as follows:—

A Survey of Vacant Houses. Housing Accommodation. Skating. Epidemic Influenza. "Practical" Palliatives versus Constructive and Far-reaching plans. Inspections for License Permits (Laundries, Pool Rooms, Second Hand Stores, Livery Stables, etc.) Dirty Back Yards. Spring Clean-up. Swat the Fly Campaign. Prosecutions. Danger from flies recognized by the Courts. Communicable Diseases. Semi-Annual Review of Vital Statistics. Poultry Slaughter Houses. Control of Larvae of Moths in Dried Fruit, Flour, etc. Rats—why not rid the City of them? Care of Milk Bottles. How many Cows and Horses are kept in Winnipeg? The value of advertising in Health Work. The Keeping of Poultry (new by-law). Light—too much or too little.

Educational Work

As in other years officers of the Department have been invited to give talks on health subjects before various bodies. Our men appreciate the opportunity thus afforded of enlisting the sympathy and help of citizens in the important work which this Department is doing. For the education of our own Inspectors the following programme was arranged by the Committee in charge:—

Syllabus for Manitoba Branch, 1919-1920

December 6, 1919—Opening Address by Dr. A. J. Douglas, Medical Health Officer, Winnipeg, Man.

December 13, 1919—"The Extirpation of Bed Bugs and Cockroaches." H. B. Westen.

December 20, 1919—"Reconstruction." F. W. Dudley-Ward.

January 10, 1920—Address by Dr. Gordon Bell, Chairman, Provincial Board of Health, Manitoba.

January 17, 1920—"Building Construction in Relation to Sanitation." P. Pickering.

January 24, 1920—Demonstration, Bacteria under the Microscope, by Miss Wilson, Assistant Bacteriologist, Winnipeg.

January 31, 1920—Debate: "Resolved that, in Public Health work, better results are obtained by educational methods than by restrictive legislation." E. C. Brown, seconded by W. F. Thornley in the affirmative, and E. W. J. Hague, seconded by A. Barclay in the negative.

February 7, 1920—"Disintegration of Concrete by Ground Waters." A. Blackie, City Chemist, Winnipeg.

February 14, 1920—"Principal Factors in the Cause of Spread of Infection." W. J. T. Watt.

February 21, 1920—"Methods of Cattle Inspection for the Dominion Government." Dr. W. A. Hilliard, Veterinary Inspector.

February 28, 1920—"Practical Food Inspection." A. Rigby.

March 7, 1920—"Sanitation in the Trenches and Behind the Lines." Capt. A. Paull.

March 14, 1920—"Composition of Water." J. Foggie.

March 21, 1920—"School Hygiene and Sanitation." R. Fletcher, Deputy Minister of Education, Manitoba.

March 28, 1920—"Prophylactics in Relation to Venereal Diseases." H. G. Triggs.

April 4, 1920—"Health Principles as Applied in Public Schools." Dr. D. McIntyre, Commissioner of Education.

April 11, 1920—"Comparison of Provincial and Municipal Ordinances Relating to Food Inspection." Dr. E. S. Bowman.

April 18, 1920—"Problems of Rural Sanitation." Dr. M. S. Fraser, Provincial Board of Health, Manitoba.

April 25, 1920—Closing Session; Social Evening.

General Comment

Early in the year the Department sustained another severe loss when Mr. W. F. Thornley, second Assistant Chief Inspector of the Sanitary Division, resigned.

Mr. Thornley left us to accept the position of Chief Health Inspector of Hamilton, Ontario. The City of Hamilton is to be congratulated in securing such a fine type of man to take charge of its sanitary department. Mr. Thornley was connected with this department for twelve years and was a highly trained, tactful, and most conscientious officer. He left the department to the regret of every one connected with it and we unite in wishing him every success in his new field.

Mr. Officer was appointed to Mr. Thornley's position and Mr. Pickering was appointed Smoke Inspector and Supervising Inspector.

In conclusion I desire to express to the members of the staff my very sincere appreciation of the faithful manner in which they have discharged their duties throughout the year.

Respectfully submitted,

A. J. DOUGLAS,

Medical Health Officer.

REPORT OF THE DIVISION OF SANITARY INSPECTIONS AND HOUSING

A. J. Douglas, Esq., M.D.,
Medical Health Officer.

Dear Sir:—

I have the honor to submit herewith reports of the work accomplished in those branches of the Department under my control, as set forth in the reports of the Assistant Chief Health Inspector, the Inspector of Tenements, and the Smoke Inspector. I also submit the Scavenging report for the year.

Respectfully submitted,

J. H. PEARSON,

Chief Health Inspector.

REPORT OF ASSISTANT CHIEF HEALTH INSPECTOR

A. J. Douglas, Esq., M.D.,
Medical Health Officer.

Dear Sir:—

I submit herewith report on the work done by and the records of the Division of Sanitary Inspections and Housing for the year 1920.

Abatement of Nuisances

The table which takes up the next four pages is a complete concise record of the work done by the Inspectors of this Division during the year.

The grand total of inspections and re-inspections was 45,138 being an increase of 7,424 over 1919. The total defects discovered were 20,040, an increase of 2,708 over 1919.

Nearly 3,000 more notices were served than in 1919.

SANITARY INSPECTIONS FOR THE YEAR 1920

	January	February	March	April	May	June	July	August	September	October	November	December	Totals
Complaints received in office	572	449	524	587	664	700	406	453	546	628	664	530	6723
Complaints made to Inspector	82	68	49	57	99	62	87	59	64	103	52	45	827
Total	654	517	573	644	763	762	493	512	610	731	716	575	7550
Of above—													
Complaints re non-removal of garbage, etc.	473	330	347	389	450	478	308	314	410	500	526	446	4971
Complaints re nuisances, etc	181	187	226	255	313	284	185	198	200	231	190	129	2579
Total	654	517	573	644	763	762	493	512	610	731	716	575	7550
Complaints well founded	561	452	509	562	646	661	417	430	526	666	602	539	6571
Complaints unfounded or rectified previous to receipt of same	93	65	64	82	117	101	76	82	84	65	114	36	979
Total	654	517	573	644	763	762	493	512	610	731	716	575	7550
Written notices (informal)	86	94	149	115	189	195	330	188	345	380	498	278	2847
Written notices (statutory)	129	126	174	334	267	279	183	126	176	196	181	122	2293
Verbal notices or warnings	613	604	842	781	670	1043	827	579	850	1223	1200	668	9900
Total	828	824	1165	1230	1126	1517	1340	893	1371	1799	1879	1068	15040
INSPECTIONS MADE													
Dwelling houses	480	314	336	368	266	262	260	281	289	274	276	412	3818
Tenement and apartment blocks	91	68	73	65	50	58	34	64	55	56	80	59	753
Hotels and lodging houses	57	40	50	53	27	39	24	14	20	14	36	26	400
Schools and public buildings	4	4	4	6	2	5	1	4	4	5	5	2	46
Abattoirs	2	3	2	3	2	6		3	1	11	3	3	39
Workshops and factories	38	29	42	46	24	26	26	31	38	28	21	20	369
Offices	15	12	6	14	3	13	4	8	8	1	8	8	100
Restaurants and stores	52	47	27	27	55	45	22	15	39	20	23	21	393

SANITARY INSPECTIONS FOR THE YEAR 1920 Continued

	January	February	March	April	May	June	July	August	September	October	November	December	TOTALS
Livery, feed and sale stables	12	12	13	29	18	32	26	19	23	25	24	19	252
Private stables	148	79	167	103	127	182	151	148	1215	195	172	135	2822
Laundries, hand	69	62	60	128	64	111	61	53	66	57	67	102	900
Laundries, steam	4	5	5	7	7	8	2	3	9	4	4	3	61
Dog kennels	4	3	3	22	12	16	5	8	11	12	10	5	111
Theatres and places of amusement	6	6	3	2		2	2	2	3	2	4	2	34
Public bath houses	11	8	8	8	8	10	6	6	9	8	8	9	99
Public bath houses, water samples	4	4	5	4	3	5	4	4	4	5	7	9	58
Public comforts stations	19	13	1	16	15	22	9	20	22	22	22	14	195
Maternity and Infants' homes		2	2	2	5	8	4	3	6	5	1		38
Private hospitals			1				1						2
Common Drinking Cups and Towels	12	10	8	7	6	8	5	3	7	4	5	3	78
Barber shops	30	18	16	9	29	26	7	11	16	9	11	16	198
Second-hand stores and junk yards	40	28	42	52	94	72	31	31	21	36	52	32	531
Pool rooms	23	27	17	47	39	58	28	33	29	25	20	29	375
Yards, sheds, areas, etc	943	882	1088	1283	1060	1240	882	980	1016	1159	1231	604	12418
Vacant lots (nuisances)	56	57	104	115	102	105	41	48	50	313	52	33	1076
Streets and lanes (nuisances)	159	143	181	117	114	272	131	93	101	543	1068	640	3562
Re infectious diseases		94	303	493	681	407	28	9		1			2016
(Houses placarded, disinfected, etc.)													
Total number of inspections	2279	1970	2567	3026	2813	3038	1795	1894	2062	2834	3260	2206	30744
Re-inspections	853	953	1166	1060	1372	1541	1393	1042	1347	1162	1425	1080	14394
Total number of inspections and re-inspections	3132	2923	3733	4086	4185	4579	3188	2936	3409	3996	4685	3286	45138

DEFECTS, AND NUISANCES DISCOVERED AND ABATED

	January	February	March	April	May	June	July	August	September	October	November	December	Totals
Defective or choked drains	17	20	22	32	26	25	25	24	29	29	16	20	285
Defective or choked sinks and wash-basins	27	30	28	53	27	18	26	11	9	17	15	14	275
Defective or choked water-closets and fittings	53	51	43	85	43	44	18	12	82	38	33	20	468
Defective or choked baths and fittings	5	3	3	4	4	1	7		1	5	3	1	37
Defective or choked urinals and fittings	3	6	7	6	8	5	6		2	3	3	2	51
Defective or choked soil pipes, clean outs, etc	9	9	13	15	9	15	8	5	12	6	12	6	119
Defective or choked catch-basins and traps	10	17	23	20	12	15	19	20	21	11	18	7	193
Defective light and ventilation W.C. compartments	2	6	4	5	7	8	7	6	2	4	8	3	62
Frozen plumbing and water pipes	83	55	26	23	1		1			5	6	18	218
Frozen vent stacks	9	2											11
Frozen sewer connections	2	4	1	2	4							1	14
Water services defective or cut off	30	34	30	31	29	29	28	10	13	18	7	10	269
Insufficient plumbing fixtures	4	5	2	8	6	17	8	4	6	11	8	1	80
Notified to instal new plumbing	5	19	1	8	7	9	4	8	12	6	9	8	96
Total plumbing defects	259	261	203	292	183	186	157	100	135	153	138	111	2178
Dirty yards, courts, sheds, etc	305	371	505	603	523	664	666	599	657	728	521	170	6312
Keeping fowls in dwelling	7	9	18	11	14	12	10	10	9	21	12	4	137
Keeping pigeons in dwelling	3	2		1	1	1	2	2	1	1	1	1	16
Keeping other animals in dwelling		1	4	2	7	2	7	1	3	3	4		34
Cows too close to dwelling	7	7	4	6	4	11	3	7	7	9	34	10	109
Hogs unlawfully keeping	1		1	1						2			5
Garbage receptacles	114	79	143	262	180	373	576	307	361	364	187	78	3024
Refuse receptacle	92	96	94	115	109	99	201	101	125	221	87	79	1419
Manure receptacles	38	38	56	62	50	80	74	51	68	51	51	39	658
Ash receptacles	79	18	24	17	8	23	8	13	4	15	69	68	346
Paper receptacles	17	17	18	62	25	31	33	14	15	21	23	19	295

DEFECTS AND NUISANCES DISCOVERED AND ABATED Continued

	January	February	March	April	May	June	July	August	September	October	November	December	TOTALS
Slop cribs (winter)	1												1
Defective cellars and basements (walls, floors, drainage, windows, etc.)	16	14	36	30	51	64	73	49	56	63	16	18	486
Dilapidated and insanitary dwellings (walls, ceilings, floors, etc.)	9	6	15	4	15	25	17	23	12	18	16	6	166
Dilapidated and insanitary tenements	4	2	3	4		9	1	1	5		4	5	38
Dilapidated and insanitary offices and workshops		2	2	36	1			2	2				45
Dilapidated and insanitary other buildings (stables, sheds, etc.)	2	10	10	13	23	26	8	33	10	14	26	8	183
Overcrowding (day inspections)	14	41	15	16	5	4	8	4	19	6	22	10	164
Overcrowding (night inspections)		36	8								1	2	47
Overcrowding (notices)	15	38	4				1	2	6	3	13	7	89
Defective chimneys	5	3	6	6	4	4	5	4	5	6	3	4	55
Defective roofs	1	5	7	11	14	13	12	18	19	14	3	6	123
Defective eavetroughs and rain-water leaders	1		6	8	11	14	19	25	22	14	2	4	126
Defective gas fixtures and piping	2		3	6	2	2			2		1	2	20
Defective furnaces and heating apparatus	15	12	15	4	7	2		2	3	11	13	9	93
Defective refrigerators						1							1
Defective lighting	3	7	5	5	2	7	3	11	3	3	8		57
Defective ventilation	5	5	3	5	3	10		10	3	9	9	5	67
Notices to build, repair, clean or remove brick pit closets	1	2	6	3	12	11	5	10	17	17	8	9	101
Notices re contractors' closets	7	5	11	28	25	26	23	20	29	21	15	4	214
Notices re chemical or patent closets				1					1	1			3
Stagnant water, vacant lots			40	28	24	5			2	3			102
Other nuisances, vacant lots	35	52	49	65	63	64	34	21	42	45	35	30	535
Nuisances on lanes or streets	93	91	89	86	107	181	86	76	92	452	880	558	2791
	892	969	1200	1501	1290	1764	1875	1416	1600	2136	2064	1155	17862
Plumbing defects	259	261	203	292	183	186	157	100	135	153	138	111	2178
Total defects discovered (including plumbing defects)	1151	1230	1403	1793	1473	1950	2032	1516	1735	2289	2202	1266	20040

Smoke Nuisances													
Observations of chimneys and smokestacks	22	31	38	46	28	11	31	20	30	32	23	12	324
Inspections of furnaces, boilers, fuels, etc	54	65	53	63	33	65	40	56	135	81	65	71	781
Total	76	96	91	109	61	76	71	76	165	113	88	83	1105
Notices, statutory	6	2	7	11	2		3	4	7	4	9	9	64
Notices, verbal	15	19	22	28	9	5	21	9	37	41	13	23	242
Total	21	21	29	39	11	5	24	13	44	45	22	32	306
Miscellaneous													
Milk samples taken													
Water samples taken			10	4	13	33	4						64
Chemical tests (plumbing and drainage), positive				5	2	1	3	4	2	4	1	1	23
Chemical tests (plumbing and drainage) negative	2		2	2		2	2	3	1	1	1	2	18
Cases reported for prosecution	5	4	11	8	7	5	2	2	10	4	8	7	73
Time attending court (hours)	1	1	2	5	3½	6	2½	5	10	6½	6½	3	52

Frozen Plumbing and Water Pipes

There were only 218 cases of frozen plumbing or water pipes dealt with, as against 356 in 1919. Considering that the winter of 1919-20 was very long and cold this is somewhat surprising. It would almost seem to indicate that a large number of our older houses have been repaired in such a manner as to better protect the fixtures and piping. During the last few years the Department has caused a very large number of the old earth dug-out cellars to be rebuilt or filled in. Some 486 cellars were dealt with during 1920. We shall be glad when the last of the old type of cellar is gone, for they are a perpetual source of trouble and extremely insanitary. There are many, however, who would perpetuate them by rebuilding wooden walls and floor, in fact we found several of these this year. The Department has, during the last two winters, refused to eject tenants on account of frozen plumbing, at the instance of the owners, and has insisted on the plumbing being thawed out and properly protected.

Frozen vent stacks reported, 11. Frozen sewer connections, 14. There must be a great many more than these in the course of a winter but in the case of the former many tenants do not even know that the vent stacks are frozen. In houses provided with intercepting traps the danger of sewer air entering the house through syphoned traps is not so great, but where there is no house-trap—and it is in such houses that the freezing of vent stack mostly occurs—the condition is more serious. In all new plumbing installations the house-trap is now obligatory.

Other Plumbing Defects

Of the total 2,178 plumbing defects discovered 1,428 were due to defective or choked drains, sinks, baths, wash-basins, W. C's or other fittings. Sixty-two cases of defective lighting and ventilation in W.C. Compartments were dealt with. At 269 premises the water service was defective or else the water cut off. In 80 cases complaint was made that the plumbing fixtures provided were not sufficient. Ninety-six notices to install new plumbing were served. A great number of dwelling houses intended for use by one family only are at the present time occupied by several families in each house. In the majority there is only one W.C. and one sink. This accommodation is very inadequate, not always accessible and is open to grave objection both on sanitary and other grounds.

If these houses are to be allowed to remain occupied by more than one family the installation of additional plumbing fixtures should be insisted upon without delay.

Garbage, Manure or Other Receptacles

The following notices were served:—

To provide garbage cans	3,024
To provide receptacles for incombustible refuse	1,419
To provide new manure bins or to repair old ones	658
To provide ash receptacles	346
To provide boxes for waste paper	295
Total	5,742

This is 1,000 more than last year.

Garbage cans may be purchased from the Department at $2.75 for a really well made can.

Recently the Department stocked a number of wooden ash bins 3′ x 3′ x 3′ (1 cubic yard) which are offered for sale to householders for $5.75 unpainted, $6.75 painted.

Contractors Closets

The number of permits issued increased from 66 to 132 and 214 notices were served on Contractors respecting the providing, proper construction, cleaning or removal of such closets.

Livery, Feed and Sale Stables

Permits issued,20—a decrease of 6 from 1919. Inspections 252. The livery stable where horses and buggies were kept for hire has practically disappeared. The few public stables now kept are for boarding or sale purposes. There are still a few old stables which we should like to see closed.

Private Stables

There were 2,822 inspections made of private stables—nearly twice as many as in 1919, and 183 notices (statutory) served respecting improvements required either in the construction of same or the manner of maintenance.

Keeping of Animals

During the year the Department dealt with the following instances regarding the keeping of animals.—

Poultry—	
Keeping fowls in dwelling or in sheds attached to dwelling	137
Keeping pigeons in dwelling or in sheds attached to dwelling	16
Total	153
Keeping other animals in dwelling (mostly dogs)	34
Larger Animals—	
Keeping cows in sheds or stables too close to dwelling	36
Keeping cows in dilapidated sheds or stables	50
Keeping of cattle other than cows	12
Keeping of horses	88
Keeping of goats	3
Keeping of hogs	9
Keeping of sheep	1
Total	199

These 199 animals were kept in 109 different stables. Action was taken and resulted as follows:—

Cows removed	52
Calves removed	11
Goats removed	3
Hogs removed	9
Horses removed	27
Sheep removed	1
Total	103
Prosecutions	12
Of the stables and sheds:—	
Vacated and placarded	35
Vacated but not placarded	33
Stables improved	21
Stables demolished	1
New stable built	1
Number of animals kept reduced in	5
Extension of time given on receipt of guarantee	9
Requests to be allowed to occupy insanitary sheds refused	4
Total	109

Owing to so many complaints being received regarding the keeping of poultry too close to dwellings and also under very unsuitable conditions, the Council passed a new by-law for better regulating the same. The by-law requires a distance of at least 10 feet between any chicken coop and an occupied building on the same lot; twenty feet from a building on an adjoining lot; 25 feet from any street except in the case of lots having a frontage on two or more streets. In all such cases the minimum distance required is 25 feet from the street on which the occupied building on the lot fronts and 10 feet from any street at the side or rear of the lot. Poultry may not be kept on any lot with a less frontage than 25 feet, unless such lot be over 100 feet in depth. Pigeons are to be confined. Pens and enclosures are to be dry, airy, and light. Regulations are made for strict cleanliness, etc.

During the year the Milch Goat Association made representations to the City that if the regulations were modified a great many goats would be kept in the City and that this would be of great benefit. The request was granted and the Health By-law amended so as to permit the keeping of not more than two milch goats in sheds or stables at least 30 feet from the nearest dwelling house. Only five goats are as yet kept, however.

A Census of Animals

In September the Department took a census of all stables in the City.

The preceding census was taken four years ago, in 1916, and for comparison we have also the records of an earlier census taken in 1912. The figures obtained are interesting.

In some cities, notably the Pacific Coast Cities of the United States, the horse is getting to be a somewhat rare animal. Winnipeg has proceeded more slowly in the matter of substituting motors for horses. This delay has been due probably, to a doubt as to whether automobiles could be successfully operated here in Winter. Experience has shown that they can, and also that they are rapidly superseding the horse.

The Health Department is in the transition stage at the present time, having made a very successful start with the use of motors and trailers for scavenging purposes.

There are, at the present time in Winnipeg, 834 occupied stables as against 1,181 in 1916, and 2,306 in 1912. This is a decrease of 347 since 1916 and 1,472 since 1912. Livery, feed and sale stables have decreased from 56 in 1912 to 21 at the present time.

The total number of horses kept at the present time is 3,804 as against 4,758 in 1916 and 7,726 in 1912.

The decrease during the last four years is only 954, whereas, during the four years from 1912 to 1916 the decrease was 2,968.

The total number of cows kept is 621 as against 666 in 1916 and 970 in 1912.

The decrease during the last four years is 45, whereas the decrease between 1912 and 1916 was 304.

Of these cows 361 are kept at licensed dairies of which there are 12 within the City limits.

There were 47 cows found in sales stables. This leaves a total of 213 cows kept by private individuals, a slight increase over 1916.

Notwithstanding the splurge made last year about the desirability of keeping goats and which resulted in the Health By-law being amended to permit of the keeping of milch goats under reasonable restrictions, there were found only five goats in the whole City.

About 32% of the stables are sewer connected and 30% have concrete floors.

The Department experiences a good deal of trouble in getting persons who wish to keep cows, to build sanitary stables in accordance with the City By-law.

Many persons buy a cow in the Spring, keep it with the herd on the prairie all Summer, and when Winter comes we find such cows brought in and kept in woodsheds, chicken pens, and other unsuitable places.

It might be well to state here that any building or shed used as a cow stable must comply with the following conditions:—

1. It must be at least 40 feet from the nearest dwelling if one cow is kept and at least 80 feet if two cows are kept.

2. Must have a concrete floor.

3. Be connected with the sewer, if any sewer on the street opposite the property.

These are the three most important points, other details are:

A window or windows equal in size to 1/20th of the area of the floor; a roof ventilator; a fly-proof manure bin; fly screens and door in Summer; limewashing.

In the case of a new stable a permit should be obtained from the Building Inspector before commencing to build.

Dog Kennels

Twenty permits were issued for dog kennels, four more than last year; 111 inspections of dog kennels were made.

Nuisances in Yards, Sheds, Lanes, Vacant Lots, Etc.

Dirty yards, courts, sheds, etc.	6,312
Stagnant water on vacant lots	102
Other nuisances vacant lots	535
Nuisances on lanes or streets	2,791
Total	9,740

The large number of defects dealt with indicates that ceaseless vigilance is required from our inspectors in patrolling lanes. During the last few years some leniency had been exercised towards the practice of storing ashes for removal on lanes. This became so general that the lanes became almost blocked and the ditches were full of frozen ashes in the Spring. The Health Committee recently ordered that this Winter no ashes are to be allowed on lanes. Public warning was given by means of large advertisements in the daily papers. The citizens generally saw the reasonableness of the order, and the lanes to date this winter are remarkably free from obstruction.

Nuisances Compulsorily Abated and Charged to Taxes

This is only resorted to when the person responsible cannot be found or when the owner of the property concerned does not live in the City. Only four such cases were dealt with during the year, three of which entailed the pumping of stagnant water from cellar excavations and the opening up of sewer connections. The remaining instance involved the thorough cleansing and disinfection of a cottage where the owner had died under distressing and filthy conditions.

Compulsory Sewer Notices

Only four such notices were served during the year. Two of these were required in order to drain cellar excavations, one was asked for by the owner of a stable, and the fourth by the owner of a dwelling to assist him in installing plumbing in the premises.

Applications for City Installed Plumbing

The number of applications received this year (15) is very much larger than in any previous year. The cost of plumbing is very high at present which renders it difficult for working men who have been notified to install plumbing to finance the matter. Under the City plans they are allowed 7 years to pay for the work.

Overcrowding

There were 164 day inspections and 47 night inspections made; also 89 notices served respecting overcrowding during 1920. Only 2 prosecutions were undertaken. Since the steady flow of immigration stopped on the outbreak of war we have not been troubled much with cases of room overcrowding. The former frequent instances of gross overcrowding due to the constant influx of new settlers quite unfamiliar with our laws and standard of living are just now only a memory. We have had time during the interval to educate these people, and their children have also received instructions in our schools, so that their standard of living now approximates Canadian ideals. Should, however, the tide of immigration set in with its former vigor, we should, no doubt, soon experience again the former evils of overcrowding.

The above refers to overcrowding of rooms only and not to the present deplorable overcrowding of families into one-family dwellings. This will be referred to in the paragraph immediately following respecting housing.

Housing

The housing accommodation of the City has been materially improved by the building of houses in the City under the Housing Commission, and also by the building which has been done in Assiniboia, St. Vital, Fort Garry, East and West Kildonan, etc. It is probable that many persons moved into some of these new houses late last Fall, thus leaving their former houses vacant with not much chance of them being re-rented before Spring.

The Building Inspector's Report for 1920 shows 271 permits issued for dwelling houses. Of these, 153 were for houses being built under the supervision of the Winnipeg Housing Commission. Not all of the 271 houses were, however, completed by Dec. 31st, 1920.

By the courtesy of Mr. Welfley of the Housing Commission we obtained the figures for the houses built by the Commission.

One hundred and fifty-three applications were approved and 108 of these houses have been completed and occupied.

The houses are located as follows:—

District 1—Fort Rouge	60
District 2—Assiniboine River to Portage Ave.	10
District 3—Portage Ave. to Notre Dame	50
District 4—Notre Dame to C.P.R. Main Line	0
District 5—C.P.R. to North City Limits	20
District 6—Elmwood	13
Total	153

At the end of 1917 as per Assessment Commissioner's Report there were in the City:—

Dwelling Houses	28,931
Built in 1918	36
Built in 1919	87
Built in 1920	271
Total	29,325

We should have a complete record of all apartment blocks in the City with the number of suites in each, and I would recommend that this information be obtained and kept up to date, in order that we may know how many families can be housed in the City.

The housing loans made in the Municipalities immediately adjoining Winnipeg during 1920 were as follows:—

Assiniboia	$1,229,166.00
Charleswood	6,000.00
Fort Garry	280,430.00
Kildonan E.	107,135.00
Kildonan W.	80,618.00
St. Vital	107,278.00
	$1,810,627.00

At an average loan of $3,000 per house, this would indicate about 600 new dwellings many of which were, doubtless, for men earning their living in Winnipeg.

The men who got one of the Housing Commission's houses, or who got out into one of the surrounding municipalities where they could probably have a much larger lot are to be congratulated; but it should be remembered that there are many others who have not the money to make the initial payments to have a house built. Conversely we believe that there are numbers living in crowded quarters who have the money but don't want to leave the centre of the City.

Warmth of Buildings

It has been pointed out in previous reports that no standard of warmth in dwellings is required by our Building By-law, and that as a consequence in years gone by a very large number of houses were built for speculation which are not at all suitable for such a severe climate as is that of Manitoba in Winter. These houses are, many of them, still occupied and cost the occupants a good deal more for fuel every year than is at all desirable. At the present price of fuel the aggregate each year from this cause must be enormous. The coldness of such houses is also a source of much inconvenience and sometimes even downright misery to the unfortunate occupants by reason of frozen plumbing, and of much expense to both owners and occupants for plumber's bills. Why not prevent this by providing in the Building By-law for a minimum standard of warmth in construction of all new houses?

We understand that the specifications of houses built by the Winnipeg Housing Commission require a much higher standard as regards proper insulation of dwellings with a due regard to the conservation of heat than does the City Building By-law.

Probably these specifications might be taken as a basis in drafting amendments to the by-law.

The Commission is dealing with a most difficult subject—the providing of new houses under most adverse financial conditions in an extremely practical manner, and we hope that their work will be continued on a large scale this year.

Survey of Vacant Houses

Following the precedents of January, 1919, and January, 1920, we have again made a survey of all vacant dwelling houses in the City, and the facts ascertained are submitted herewith:—

Total Vacant Houses in City	535
Total in January, 1920, was	499
Total in January, 1919, was	1,480

The total of **535** includes however 26 new houses just about completed and ready for occupation (24 of these in Fort Rouge).

Vacant Houses in Each District

	Jan. 1921	Jan. 1920	Jan. 1919
District 1—Fort Rouge	109	44	189
District 2—Assiniboine River to Portage Ave.	35	12	110
District 3—Portage Ave. to Notre Dame Ave.	67	61	251
District 4—Notre Dame Ave. to C.P.R. Main Line	151	185	425
District 5—C.P.R. Main Line to North City Limits	131	151	404
District 6—Elmwood	42	46	101
Totals	535	499	1,480

Showing How Many of the 535 Houses Now Vacant Were Empty in January, 1920, and in January, 1919.

Appearing on 1921-1920 and 1919 Lists	108
Appearing on 1921 and 1920 Lists only	36
Appearing on 1921 list only	391
Total	535

The 144 houses which appear on more than one list are those which might be termed "stickers," or houses which there is not much likelihood of the owners trying to renovate. The number corresponds very closely with the number of houses placarded insanitary (70) and those boarded up (70) although they may not be exactly the same houses.

Table Showing the Number of Houses in Each District Repaired Since January, 1920

On list January, 1920		499
Repaired and put in occupation during the year:—		
District 1	36	
District 2	7	
District 3	34	
District 4	119	
District 5	125	
District 6	34	
		355
		144
Houses appearing for first time on this year's list		391
Total vacant January, 1921		535

The Unrepairable House

Three hundred and fifty-five of the 499 houses reported vacant in January, 1920, have been since fitted up and reoccupied. It would also appear that the "stickers" or badly dilapidated houses have been reduced since January, 1920, from 288 to 144. As there are 70 houses placared insanitary, and 70 boarded up, it looks as if this number (144) denotes approximately those which are not worth repairing.

The large number of 391 houses appearing for the first time as vacant on this year's list would seem to indicate that there are bound to be at all times in a City the size of Winnipeg, a large number of houses which for various reasons are temporarily vacant, probably 400 houses would be a fair constant.

It will be noted that of the 535 houses now vacant only 188 have "To Let" placards affixed, so that apart from those insanitary or dilapidated, many houses are held for sale only and not for rent.

It seems incomprehensible to many persons that with so many vacant dwelling houses in the City there should be any housing problem.

We have tried to show that taking into account houses dilapidated and unfit for occupation, the number of temporarily vacant houses at present is no more than normal for a City of this size.

We know, however, from actual and detailed Housing Survey as regards part of the City, and from observations and reports in other parts, that there are a very large number of single family dwellings constantly occupied by more than one family, that many houses contain a large number of separate tenants or families, and that a very large number of families are living in one of two rooms per family. The conditions in such houses with their lack of proper sanitary conveniences, lack of privacy, want of adequate light and ventilation, danger from fire, etc., are not conducive to good health.

There are very many large houses so occupied and which, owing to changes having occurred in the neighborhood, will never again be occupied as single-family dwellings. A large proportion of these are well-built houses. The only thing wrong with them is that they are not suitable for use as tenements, and cannot be made to comply with the strict provisions of our tenement law.

What then is to be done with them? It is too much to expect that they shall be kept vacant. By a little modification of the tenement provisions many such houses could be made into very good two and three family tenements.

One thing is sure, just so long as they are permitted to be occupied in their present condition, we may expect a continuation of the present housing conditions. Unless compelled, the owners will do nothing to effect the necessary alterations, and the lessees will do nothing except install gas piping and stoves throughout the bedrooms in order that they may derive more rent.

If, on the other hand, a start is made without further delay to compel the owners of such houses to either restore them to their original status as one-family dwellings, or else to make the alterations necessary to fit them up for tenement use, the vacant houses in the City would very soon be occupied and a great demand for more arise.

In 1914 we submitted certain amendments to both the Building and Health By-laws, which were calculated to give the Health Officer power to take such action in the care of these nondescript tenements. Action was deferred on account of the outbreak of War.

The Department is ready at any time when given the necessary legislation and instructions, to proceed to deal in as effective a manner with the evil as the present shortage of houses, and the number of inspectors at our disposal will permit.

Whenever such steps are decided upon, there will, doubtless, be strong opposition manifested by the owners of such premises, who are quite satisfied to draw the rents without making improvements, from the lessees, who are in many cases deriving a lucrative living from "farming out" such houses (in some instances one lessee operates several houses); and also from the tenants many of whom are not so poor that they require to live in such fashion.

What is equally important is to stop the conversion of any more dwelling houses to tenement uses without permit. We are constantly becoming aware of fresh infraction and have not been able to prevent them on account of the shortage of houses, and also because we must not discriminate but treat all alike, once we begin to deal with the question.

The Joint Council of Industry of the Province of Manitoba recently held an investigation into the question of rents of apartments and dwellings. The concluding paragraph of their report sums up in a most succinct manner the extreme difficulties of the present housing situation. It reads as follows.—

"This housing shortage constitutes a grave menace to the physical, mental and moral well-being of our citizens, and the Council feels it is performing a public duty in attempting to find a solution to the problem. With building costs as they are, it is difficult to see how apartment buildings or houses erected at the present time can net rentals sufficient to give a fair return upon the investment which would not at the same time make larger demands upon tenants than current wages and salaries can bear. Since we cannot offer to private investment a fair and proper return without laying an undue burden upon tenants in the matter of rentals, the Community must find some source to draw upon for the meeting of the present acute need for houses other than that furnished by private enterprise. To deal with this question the Council is inviting representative Citizens of all classes in the Community to a conference in the hope that some practical solution may be discovered and a line of immediate action determined. It is also suggested that the City Council should at once proceed to obtain the exact data to date in connection with the whole question of housing."

Trades, Manufacturing, Office Buildings, Etc.

We made 369 inspections of workshops and factories and 100 of offices. The latter were mostly on account of complaints regarding lack of proper sanitary conveniences, or of poor ventilation. We can often get the latter rectified by a little advice as to the proper arrangement of window sashes and the judicious use of windows. Our inspection was made of premises where it was proposed to manufacture sanitary supplies, including liquid soaps. The premises were approved. We also examined plans for a distillery, which were not approved. A complaint was dealt with regarding a sheet metal works where a number of charcoal burners were used for heating soldering irons. These stoves were done away with, oil-burners substituted and improved ventilation provided.

We find that employers—especially the larger firms—are becoming increasingly aware of the importance of maintaining proper sanitary conditions in factories and workshops. Any new factories erected are generally constructed and equipped along modern lines, and although it is much harder to obtain good conditions in old factories a fair attempt has been made in many. Some larger firms do considerable welfare work amongst their employees, providing lunch rooms, reading rooms, surgery with graduate nurses in attendance, physical and recreational directors, and even a follow-up system in the homes.

All this is as it should be for it is now generally admitted that in those factories properly constructed and equipped with due provision for adequate natural light, properly installed artificial light, efficient ventilation, dust fumes and odor removing machinery, prevention of excess heat or moisture, protection of machinery, adequate sanitary conveniences, lunch and rest rooms, etc., together with the elimination of fatigue by shorter hours, a marked improvement is noted as regards the frequency of accidents, a diminished loss of labor turnover due to the improved health of the employees, and frequently an increased output thus giving a direct monetary return for the investment. These improvements in the standard of working conditions although to some extent due to pressure from the employees, or to a far-sighted desire for dividends, are also due very largely to altruistic ideas now beginning to pervade the business world. It used to be said that "A Corporation has no soul." It begins to look as if some of them have.

Rats

The recent frequent sporadic outbreaks of Bubonic Plague in California, Lousiana, Texas and Florida have been the means of directing the attention of Health Authorities to the possible danger of the rat population of inland cities also becoming infected, and several very important gatherings during 1920 devoted considerable time to the problem of rat extermination.

Perhaps the most important recent action taken on this question is a resolution concerning rat extermination passed by the American Public Health Association at its meeting held in San Francisco, September 16th, 1920, and which reads as follows:

WHEREAS, the sea coast cities of many nations have been subjected to numerous attacks of Bubonic Plague, and WHEREAS, many of the Cities along the sea-coasts are making heroic efforts to prevent the plague by rat-proofing buildings and exterminating rats, and

WHEREAS, the agricultural regions of the American Continent, some of which are situated far inland, are badly infested with rats, and

WHEREAS, very little effort to exterminate rats is being made in agricultural sections,

therefore,

BE IT RESOLVED, that the federal, state and municipal governments of the countries included within the American Public Health Association (this includes Canada, the West Indies and all Central and South American Countries) put forth every effort to exterminate rats or other animals that may carry plague-infecting fleas, THE SAME EFFORT TO BE PUT FORTH INLAND AS HAS BEEN PUT FORTH ALONG THE SEA COAST; BE IT RESOLVED, that a Committee be appointed by the President of this Association whose duty shall be to assist the federal, state, and municipal authorities in the extermination of plague-carrying animals; BE IT FURTHER RESOLVED, that the federal agricultural departments, the state agricultural departments, the county farm bureaus, and agricultural, horticultural, livestock, poultry or other farm organizations, be requested to put forth an earnest and continued effort to exterminate animals known to be capable of transmitting plague."

Rats in Winnipeg

Rats made their first appearance in Winnipeg about 1910, and since then have spread and multiplied until they are now found in every part of the City.

In September, 1911, the City Council authorized the distribution of a small circular, "Rat Prevention and Destruction," also payment of a bounty first of Ten Cents, but more recently of Five Cents each on rat's tails. Bounty has been paid on 38,831 tails at a cost of $1,941.55. In 1919, 14,960 were received but this year only 5,402 have been received.

Since 1915 the Department has also distributed free of charge to citizens 5,869 small boxes of a preparation for the extermination of rats. It is a paste which has the effect of killing rats and retarding decomposition and prevents dead rats becoming a nuisance.

In one instance in the basement of an apartment house where the preparation had been used about 29 dead rats were found in behind the boilers, and there was no offensive smell from the bodies.

We have tried out another preparation claiming to be a rat virus, but without results. The bounty is paid on bunches of tails averaging from 2, to 6 or 8, brought from all parts of the City. Occasionally larger parcels (up to 100) are brought in, generally from one of the packing houses.

The applications for rat poisons during 1920 number 972, divided as follows:

1—Fort Rouge	91
2—Assiniboine River to Portage Ave.	80
3—Portage Ave. to Notre Dame Ave.	134
4—Notre Dame to C.P.R. (Main Line)	257
5—C.P.R. Main Line to North Limits	355
6—Elmwood	55
Total	972

We thus get 17 per cent. in Ward 1, 40 per cent. in Ward 2, and 42 per cent in Ward 3.

I would say that these figures give a very fair estimate as to those districts where rats are most numerous. In the fourth and sixth of the districts mentioned there are by far the largest proportion of frame buildings, which are without proper rat-proof foundations, and these of course afford the best breeding places for rats. In these districts also there are more abattoirs, stables and chicken pens, than in other parts of the City, as well as the bulk of the stores, and the large wholesale food warehouses including the C. P.R. Yards and Freight Sheds. Wherever food is most plentiful there will the rats be most plentiful.

Whilst I was writing this a Logan Ave. Dry Goods Merchant called to get more poison, and stated that the rats were so thick on his premises that they had destroyed over $350.00 worth of goods in 3 weeks.

There ought to be a reasonably good chance of exterminating rats in Winnipeg, or at least of reducing them to a minimum, because during the Winter they do not migrate, but keep to the inside of buildings.

Immigrant rats are occasionally seen in freight cars just arrived from Cities in the United States of America.

I do not think that rats are more numerous now in Winnipeg than they were a few years ago. This statement is based on enquiries made of wholesale firms, at large stables, freight sheds, etc.

It is quite likely that during the years of the war the campaign for the prevention of waste had an appreciable effect on the food supply of rats and thus kept them down.

Methods of Getting Rid of Rats

When the enormous fecundity of the rat is considered, it is evident that no sporadic or individual attempt will suffice. Rats breed from 3 to 5 times a year and bear from 6 to as many as 19 young at a litter—probably 10 is a fair average. The gestation period is only 21 days and females are capable of breeding when less than three months old.

Zuschlag works out a fecundity table showing 880 young the progeny of one pair of rats and all born between December 29th, and the following September 15th—about 10 months.

Coupled with this we have the secretive cunning and nocturnal habits of the rat which accounts for much of the difficulty in exterminating him. Trapping, poisoning and the use of dogs, cats, ferrets, etc., are all old and standard methods of dealing with rats. We have already discussed the use of poison as practised in Winnipeg and may say that we probably have as effective a poison as can be got and one also more free from objectionable results.

Virus

The use of bacterial viruses, for the purpose of infecting rats with disease, has not proved to be of service. It is pointed out that even in Eastern Cities, where Plague is prevalent and the rats are of course infected and dying in large numbers, there always seem to be just as many after the epidemic is over. Most of the rat viruses used rapidly lose their effect and in many instances the rats acquire an immunity to the virus.

The Australian System of Mr. W. Rodier

As set forth in the circulars of Mr. Rodier, this plan consists of trapping rats alive, then killing the females and letting the males go, after first cutting off their tails so that they may be again identified if caught a second time and not re-counted. This has the eventual effect of making the rats polyandrous instead of polygamous. The males being in excess ot the females they will persecute the females not caught and prevent them from breeding; they will also kill the young ones which may be born. By this means it is claimed all the females are eventually killed and complete extermination follows as a matter of course.

Mr. Rodier claims that his system has "proven an unqualified success with the rabbits over an area of 64,000 acres, under adverse circumstances, also on a smaller area." He does not, however, say where. If he had used a little less abuse of the authorities for not adopting his system and more facts in his circular, it would be more convincing.

Legislation—Rat-Proofing

"In main, the rat requires two conditions for life. He needs PLENTIFUL FOOD AND PLACES SUITABLE FOR NESTING AND BREEDING. Eliminate either of these elements and you drive away rats."—(Asst. Surgeon W. Colby Rucker. U.S. Public Health Service).

Here we have the crux of the whole matter. To achieve success we need legislation requiring that rats be excluded from sources of food supplies and also from harbouring places.

Rats can and should be kept out of stables, chicken-pens, abattoirs, meat markets, bakeries, restaurants, groceries, warehouses and private dwellings.

It is productive of little good and certainly of nothing permanent to use traps and poisons and at the same time to neglect to exclude the rat from our buildings. If on the other hand, the existence of rats on any premises is declared by law to be a nuisance for which the owner and occupants are held liable, it is more than likely that effective measures will be taken to rid the building of rats and also to make it rat-proof. In drafting a By-law for the City of Winnipeg, it would not do to simply copy the rat-proofing laws of San Francisco or some other City with a different climate. It would be necessary to classify buildings and to designate an appropriate treatment for each class.

In the case of fully modern buildings with full basements of brick, stone or concrete, the question would resolve itself into the protection of doors, windows and other openings, through which rats get in. More difficulty would be experienced in the case of frame stables, sheds, chicken-pens, etc., and the removal of wooden sidewalks and yard floorings affording harborage for rats.

Garbage is already required to be kept in covered metallic receptacles, but here is an additional reason for covering up all garbage, to prevent rats from finding sustenance therein. In many places in the City rats infest the vicinity of garbage receptacles especially at premises where there is carelessness in leaving edible refuse around.

Recommendations for a Campaign of Extermination

(a) Arouse a National Interest.

It has been pointed out that sporadic attempts to exterminate rats are no good. The matter is of National Importance and the best results would be obtained if a nation-wide campaign against rats were instituted. The Dominion Public Health Department is no doubt already keeping watch on our Canadian sea-ports. Were its assistance requested it is likely that the Department would induce the Dominion Government to take a hand in this useful work, and by means of an educational campaign and the giving of bonuses, to stimulate Municipalities throughout Canada to undertake a common effort to get rid of the rat. We therefore suggest that the City Council might draw the attention of the Dominion Board of Health to this important matter. The Provincial Government might also, in view of the great annual loss sustained by farmers through the depredations of rats, take some action in the matter. They might, at least, enact some legislation on the subject.

(b) Inaugurate an Educational Campaign—Means Suggested:

A wide dissemination of rat literature amongst the citizens; Circulars, Articles in the press, and the Health Department Bulletin. The use of advertisements properly displayed (small ads are of little value). Interest might be aroused amongst the school children by offering prizes for the best essays on rats. The School Board would doubtless co-operate in the campaign.

(c) The purchase and use of a Motion Picture Film entitled "The Rat Menace," published by the National Motion Pictures Co., of Indianapolis.

This film is based on the United States Government Public Health Series, and illustrates in a very graphic and forcible manner the fecundity, habits, and haunts of the rat; the various ways in which it commits depredations; misroscopic scenes showing the fleas, lice, and mites carried by rats; the manner in which they carry diseases such as plague, trichina, sleeping sickness, etc.; the various methods of getting rid of rats including trapping, cutting off of food supply, rat-proofing, etc. The purchase and use of this picture would be of the utmost value in any proposed rat campaign, and we would most strongly recommend that it be purchased. The Managers of the Picture Theatres would doubtless, as on former occasions, be willing to co-operate with the Department in showing the film and Dr. Salton, the newly-appointed lecturer of the School Board, might be asked to make use of it.

(d) Is a Rat Survey Necessary?

Provided that a good educational campaign for rat extermination is inaugurated it might not be necessary to institute a rat survey at present. To do so would involve examining the bodies of large numbers of rats in the laboratory, which would mean additional facilities and equipment for that purpose.

(e) Continuance of Bounty.

We recommend the continuance of the present bounty of five cents for every rat's tail brought in. It might even be desirable to increase the amount to ten cents per tail for a limited period, and to inaugurate a Contest giving prizes for the largest catches of rats in addition to the bounty. We would make this a part of the Educational Campaign and give publicity to the Contest by means of large advertisements.

(f) Continuance of the Free Distribution of Extirmo.

We would recommend this and also, that an effort be made to extend its use. Here again advertisements would help.

The use of paid advertisements may be objected to on the score of cost. We are, however, firmly convinced that if it is desired to awaken public interest, advertising is the most effective means available. The expenditure for display ads during a campaign should be lavish because, "There is that scattereth and yet increaseth." On the other hand the period need not be so long as to make the cost excessive.

(g) Legislation.

Whilst it is eminently proper to proceed along educational lines in order that we may have the moral support and co-operation of enlightened citizens, it must not be lost sight of that there are many who cannot be induced to voluntarily help, especially if it means expense to them. We have to do with the man who is still obsessed with the idea that he can do just as he wants with and on his own property, or the landlord who does not care whether or not rats are causing annoyance and damage to his tenants, so long as he gets his rent.

Amendment to the Public Health Act.

We therefore suggest that the Legislature be asked to amend the Public Health Act of the Province by inserting therein a section similar to the one given below and which is taken from the Public Health Act of 1920 (New Zealand).

"A nuisance shall be deemed to be created where any premises (including any accumulation or deposit thereon) are in such a state as to harbour, or to be likely to harbour, rats or other vermin."

"Every person by whose act, default, or sufferance, a nuisance arises or continues, (whether such person is or is not the owner or occupier of the premises, in respect of which such nuisance exists), is liable to a fine of One Hundred Dollars, and to a further fine of Twenty Dollars for every day or part of a day during which such nuisance remains unabated after such conviction."

City Charter.

In addition to this in so far as the City of Winnipeg is concerned, we need first of all an amendment to the City Charter enabling the City to pass by-laws so framed as to compass the extermination of the rat, including the rat-proofing of buildings. I therefore suggest that the following Charter Amendment be asked for at the present session of the Legislature:

Proposed Amendment to the Winnipeg Charter.

Section 700 of the said Charter is hereby amended by adding thereto the following new sub-section:—

(217) For compelling the owners, agents or occupiers of all premises or buildings which are or may become infested with rats, mice, bedbugs, cockroaches, lice or any other vermin, to take adequate and effective measures to exterminate the same and to rid the premises of such vermin, and also to prevent, as far as is possible, the further entry of any such vermin to the premises.

In the case of rats such by-law may require the rat-proofing of all buildings and the removal of any wooden sheds, floors, walks or other structures, or any rubbish or other material, which are or may be found to afford harbourage for rats.

The By-law may also provide that all feed grain in stables, and all garbage or other waste substances likely to attract rats, shall be kept in closely covered metallic vessels in order to prevent the same from providing sustenance for rats.

N.B.: It will be observed that the proposed amendment is so worded as to enable the City to pass by-laws dealing not only with rats but with any other kind of vermin. We have at the present time, for instance, no specific legislation dealing with bed-bugs and cockroaches; although we are frequently called upon to deal with such vermin.

By-Laws.

After such a Charter Amendment is obtained the next step will be the preparation of a suitable by-law in accordance with the terms of the amendment. The details of such a by-law need not at present be discussed, as under the proposed Charter Amendment they might be either quite drastic or very moderate as decided by the City Council when they come to discuss such by-law.

If it is really desired to inaugurate a campaign to rid the City of rats, other measures may suggest themselves, once the work is begun, but it is submitted that the suggestions offered above, if carried into effect, will lead to a large diminution in the rat population of this City.

Rags

No complaints were received this year of violation of the regulations of the Provincial Board of Health regarding wiping rags.

Public Baths and Comfort Stations

Inspections made of Public Baths, 99. Samples of water taken from swimming pools, 58. Inspections of Comfort Stations, 195. Conditions were found at all times to be satisfactory and reports were made regularly to the Library and Baths Committee. Next year (1921) the Baths and Comfort Stations will come under the control of the Health Committee, although still managed as a separate Department.

Maternity and Infants' Homes

Thirty-eight such inspections were made, and two of private hospitals.

In September, owing to a good deal of newspaper publicity having been given to a case where a Keeper of an Infants' Home was convicted on a charge of abandoning and exposing an infant under her care, a special inspection was made of all such premises and the names of all persons except those known to be above suspicion were removed from our register. It was also arranged that the nurses of the Child Welfare Division should regularly visit all premises registered. There remain on the register only 5 Maternity Homes proper, and 2 Infants' Homes. The circumstances in the case mentioned above show how difficult it is to properly regulate Infants' Homes when kept by private individuals for gain or reward. The testimonials on our file regarding this woman were more numerous than usual and from citizens of good standing. The making of profit by taking to board a number of infants under two years of age should be eliminated. The children kept in such homes are for the most part illegitimate. At the beginning the stipulated amount is paid regularly, sometimes by the father—more often by the mother. Later one or both of the parents leave the City or Province and the payments cease. The Keeper of the Home then naturally wishes to get rid of the child thus left on their hands. It would be far better if such infants were temporarily placed in a home under Municipal or Provincial Government control, and given out for adoption into desirable families, the Government or a Society recognized by the Government as the Children's Aid Society still keeping a watchful eye over their lives until adolescence. Many of the women who thoughtlessly embark on this business for a livelihood, whilst kind to the infants, are persons without any special training or aptitude for this important work, and the more ignorant and shiftless they are, the more they resent being instructed by our visiting nurses.

Common Cups and Common Towels

In 78 instances we found either common drinking cups or common towels placed for use contrary to the regulations of the Provincial Board of Health. In every case they were quickly removed.

Chimneys and Furnaces

Fifty-five defective chimneys were dealt with, and 93 cases of defective furnaces and heating apparatus. Many complaints were received of lack of sufficient heat being provided by owners in Apartment Blocks. In many cases this arises through spasmodic and irregular firing due to the fact that the caretaker does not live on the premises. The Department Inspectors do what they can to alleviate conditions by taking up the matter with the owner. There is no law, however, regulating the quantity of heat to be supplied.

Pool Rooms

Seventy-six permits for license were issued—one more than last year, and 375 inspections were made of such places. After exercising leniency during the war period, the Department felt obliged to require a good deal of cleaning and renovating to be done this year before licenses were renewed.

Second-hand Dealers and Junk Yards

One Hundred and Eighty permits were issued, an increase of 37 over 1919. Every year the number of persons engaged in this business increases. Ten years ago there were only 68 dealers. Five Hundred and Thirty-one inspections were made of such places. We still have considerable trouble with a number of these men who try to cut expenses by letting their fires go out at nights and week-ends, thus freezing the plumbing.

Vermin

We received a large number of complaints regarding both bed-bugs and cockroaches. Sometimes these complaints are rather trivial, but frequently they are abundantly justified.

Barber Shops

One Hundred and Ninety-eight inspections of barber shops were made. No attempt is made to enforce the Regulations of the Provincial Board of Health in their entirety. General inspections were made as to the condition and adequacy of the plumbing fixtures and the cleanliness of the place. In one or two instances complaint was made of persons occupying some part of the shop as a dwelling.

Moving Picture Theatres

Thirty-four inspections of such places were made.

Private Schools

Forty-six inspections were made this year. One large new private school was erected. This school is fully modern and the plans were submitted to and approved by this Department. We had to deal with a few cases of overcrowded classrooms.

Laundries

One Hundred and Twenty-five permits for license were issued—5 less than last year. Nine hundred inspections were made of hand laundries and 61 of steam laundries. A number of the Chinese Laundries have now installed low pressure steam boilers—which is a step in the right direction and makes far better sterilization of clothing. Five applications were made to establish new laundries, but only one of the applicants succeeded in getting the requisite number of signatures of owners of adjoining property, to their petitions. Three applicants found it impossible to do this and abandoned the applications, and one is still trying to complete the petition.

Hotels

Under the new (1919) Hotel By-law we made 400 inspections of 57 hotels. In our last report we commented very fully on the undesirable conditions found in the hotels where we first undertook inspections, owing to insanitary conditions as regards cleanliness, inadequate plumbing, defective cellars, etc., but principally on account of the large number of bedrooms without windows opening directly to the outside air or obstructed by adjoining buildings, etc. We reported 303 such rooms and also that 185 of these rooms had subsequently been improved—either by constructing skylights, or by removing partition walls. A number of others have since been improved. There are still about 100 rooms which it is impossible to provide daylight for without making extensive structural alterations. The License Committee gave extension of time in several instances. The supervision of hotels will now be dealt with by the Health Committee, and it may become necessary to placard as insanitary the remaining dark rooms and to prohibit their use as bedrooms.

Work Done for Other Divisions

In order to help out at times where the number of communicable diseases reported was great, our inspectors assisted by taking sanitary reports, placarding or removing cards, etc., in 2,016 cases. They also obtained certain information regarding the registration of infants for the Statistician.

Prosecutions

(These Increased from 87 to 145.)

Nature of Charges:

Neglect to comply with notice of Health Officer	31
Deposit refuse or manure	17
Nuisance on premises	12
Cow stable too close to dwelling	8
Neglect to properly construct, drain and ventilate stable	7
Lack of garbage receptacles	4
Lack of adequate plumbing	3
Occupy insanitary premises without permission of the Health Officer	2
Breach of quarantine	2
Overcrowding	2
Permitting use of cellar for living purposes	1
Kept live fowl in dwelling	1
Established an offensive trade without permission	1
Nuisance on lane	1
Food prosecutions	11
Dairy prosecutions	42
Total	145

How disposed of:

	Total	Fines	Costs	Total
Summons not served	1			
Cases withdrawn	10			
Cases dismissed	1			
Convicted and reprimanded	4			
Costs of court	11		$ 25.85	$ 25.85
$ 2.00 and costs	4	$ 8.00	7.05	15.05
3.00 and costs	20	60.00	11.75	71.75
4.00	2	8.00		8.00
5.00 and costs	20	100.00	23.50	123.50
5.35	1	5.35		5.35
6.00	1	6.00		6.00
7.00	1	7.00		7.00
8.00	17	136.00		136.00
10.00 and costs	21	210.00	42.30	252.30
12.00	1	12.00		12.00
12.25	1	12.25		12.25
12.35	2	24.70		24.70
13.00	7	91.00		91.00
14.60	1	14.60		14.60
15.00	2	30.00		30.00
20.00 and costs	1	20.00	2.35	22.35
23.00	6	138.00		138.00
25.00 and costs	3	75.00	4.70	79.70
28.00	5	140.00		140.00
50.00	1	50.00		50.00
53.00	1	53.00		53.00
	145	$1,200.90	$ 117.50	$ 1,318.40

Insanitary Buildings

The table given below shows the number and class of premises for which notices were served upon owners and occupiers under Section 103 of the Public Health Act, under which section the Health Officer has power to require that premises be put into a proper sanitary condition or else closed up.

Dwelling houses, general insanitary condition	43
Dwelling houses, unlawful conversion of same to duplex dwellings	1
Dwelling houses, unlawful conversion of same to Tenements	1
Tenement houses	3
Basement and cellar dwellings	7
Dark rooms (dwellings)	12
Stores	5
Factories and workshops	5
Stables	46
Total	123
Notices served on owners and agents	58
Notices served on Occupants	54

Results:

Notices complied with (premises put into sanitary condition)	54
Premises closed and placarded	67
Cases still pending	2
	123
Premises remaining closed on December 31st, 1919	257
Premises repaired or demolished during 1920	46
	211
Premises closed during 1920 (dwellings 17, stables 39, other premises 11	67
Remaining closed on December 31st, 1920	278

Note:—Of the 17 dwellings closed 13 were shacks, etc., on Jubilee Avenue closed for lack of plumbing.

Owing to the continued shortage of houses, we have served as few closing notices as possible in respect to dwellings. There are many places where action should be taken, but must be deferred until conditions are more normal.

General

Inspector M. Agranovitch was superannuated on March 1st, on account of failing health and advanced age. Inspector B. C. Brough was transferred from the Division of Communicable Diseases to fill his place. Inspector J. B. Hamilton was appointed vice Pickering promoted. Inspector Moore resigned July 31st, and Inspector F. C. Austin was transferred from the Communicable Disease Division to fill his place.

The staff of this Division now consists of:—

Assistant Chief,
Tenement Inspector and Supervising Inspector,
Smoke Inspector and Supervising Inspector,
14 District Inspectors,
1 Interpreter-Inspector,
2 Clerks.

The men under my charge have given a whole-hearted service during the year. Any extra calls for service have been cheerfully met.

Yours obediently,

E. W. J. HAGUE,
Assistant Chief Health Inspector.

REPORT OF THE SCAVENGING AND REFUSE DISPOSAL DIVISION

A. J. Douglas, Esq., M.D.,
Medical Health Officer.

Dear Sir:—

I submit herewith the report of the above division for the year 1920.

This year has been a very progressive one. By a careful study of the former records which have appeared year by year in the Annual Reports, the advantages of standardizing the tables of costs are apparent. In the report for 1919, we concluded that, *the cost of the long hauls in the City for the various classes of refuse collected, were just twice as much as the costs of actual collection.*

A remedy was sought, and a recommendation was made to the Health Committee for the purchase of four 3½-ton trucks, and 17 trailers, each with a carrying capacity of 5 cubic yards.

Tenders were called, and the equipment bought as follows:

Trucks:	
Two 3½ ton Sterling trucks at $6,406.76	$12,813.52
Two 3½ ton Service trucks at $6,730.00	13,460.00
Trailers:	
Nine Troy trailers at $2,030.00	18,270.00
Tax	183.70
Five team poles at $20.00	100.00
Eight model N-4 Highway trailers at $1,816.68	14,533.44
Five team poles at $35.00	175.00
Twenty-one bodies, capacity 5 yards, all steel, end dump, including tax	9,639.00
Total	$69,174.66

We anticipated paying for this equipment in four years, through the Scavenging appropriation, and consequently wrote off from our 1920 estimates, the sum of $15,280.99.

Beginning of a Truck Service.

On July 2, 1920, at 7 a.m., the two Service trucks were put into commission and worked steadily on the collection of garbage throughout the whole month, at a cost of $3.30 per ton. I may here state that all the compilations this year, for both trucks and trailers, are made for *cost per ton only, and not per ton mile*, as the standard of our former refuse collection was taken at *cost per ton of refuse collected and delivered at its destination*, whether at the Crematory or dump. No trailers were used during the month of July as the bodies were not completed. Had we had this equipment earlier in the year, our cost of hired teams would have been lowered materially.

In August the two Service trucks were worked in conjunction with the trailers, and the first Sterling truck was put into commission also. During the month, 405 loads of garbage were collected—108 by trucks and 297 by trailers.

The trailers were operated for the collection of garbage exclusively by teams in the following way:—

Six teams with drivers and helpers left the City Barn and each team was hitched to a trailer. Each team with its driver and helper then proceeded to its appointed district for the collection of garbage.

Two teams went to Fort Rouge, two went to the centre of the City, and two went North. At an appointed time and place the two outfits in Fort Rouge were met by a truck hauling two empty trailers, and an exchange was made, the truck leaving the two empty trails and taking away the two loaded ones to the Incinerator.

Thus, one truck with a chauffeur and helper collected per day, two loads of garbage on its own account, and also made two trips to Fort Rouge with two empty trailers to be exchanged for two fully loaded ones. Each team took its last loaded trailer to the City Barn, ready to be removed by the truck the first trip next morning.

The Fort Rouge teams made 3 loads per day. *Thus a cycle was made for Fort Rouge with one unit,* composed of 1 truck with chauffeur and helper, 2 teams with drivers and helpers and 4 trailers, (two trailers being on the road whilst 2 were being loaded.)

The cycle of one unit for the North End of the City was exactly a duplicate of the one in Fort Rouge, as each team made 3 loads per day, and the truck in charge made 8 loads—6 by trailer and 2 on the truck itself.

The cycle of one unit for the Centre of the City was slightly different, as each team made 4 loads per day, and the truck made 2 loads also by itself.

Thus we had 3 units of two teams each, working independently of each other, as each unit was under the charge of its own individual truck.

By this method we brought the Cost of Collection per ton from $3.30 *down to* $2.60, *thus effecting a saving of 70c per ton for the month of August.*

In September the other Sterling truck was put into commission, and the units, as working for the month of August, were slightly changed. Two additional teams were put on to the operation of trailers, making 8 teams in all, one being added to the North End unit, and one team to the Centre. Thus the North End of the City had 3 teams to the unit, and the Centre also had 3.

The Cost of Collection per ton for the month of September *was again lowered to* $2.36, *making a further saving of* 24c *per ton.*

During the month of October a further change took place. We figured that a train could be made up of one truck and 3 trailers instead of 2 as previously arranged. Accordingly we grouped the North End unit of 3 teams, with the unit in the Centre, and put both units in charge of one truck, thus making a complete cycle of the 9 Troy trailers and 6 teams—3 trailers being on the road whilst 6 trailers were being loaded. The truck was not loaded at all.

The feasibility of working two collection units with *one truck as tractor* was figured along the following lines:—

First, we assumed that the following distances were fairly conservative:

From Crematory No. 3 to the North End, via Arlington St., Selkirk Ave.—West and through McPhillips subway to Notre Dame—4 miles. Round trip then is 8 miles.

From Crematory to centre of City, via Notre Dame—3 miles. Round trip then is 6 miles.

Time for round trip from Crematory to North End—travelling at the rate of 8 miles per hour—is 1 hour.

Time for round trip from Crematory to Centre of City, going at the same rate of speed, is three-quarters of an hour.

Time taken for coupling up train, and dumping at Crematory—30 minutes; truck to draw 3 trailers full to Crematory, and 3 empties on return journey in every case.

Side dump for trailers, so that the train can pull straight through the Crematory without uncoupling, end trailer in every case to be an end dump if possible.

Teams in operation.

North End—3 teams.
Centre of City—3 teams.

The North End unit to collect 3 loads per day, per team.

Centre unit to collect 4 loads per day, per team.

Truck to start in every case from Crematory to loading point, and the following schedule of times are of course made up on that basis.

Truck takes 3 carried over loads to Crematory every morning, and team in every case takes last load to Barn at night.

Schedule of times for operation of 3 trailer train.—Estimated.

Truck with 3 carried over trailers *leaves Crematory*	8.00 a.m.
Trip to Centre of City and return—45 minutes	45
Coupling up train and dumping loads—30 m't's.	30
Time of train leaving Crematory	9.15
Trip to North End and return—1 hour	1.00
Coupling up train and dumping loads—30 m't's.	30
Time of train leaving Crematory	10.45
Trip to Centre of City and return—45 minutes	45
Coupling up train and dumping loads—30 m't's.	30
Time of train leaving Crematory	12.00
Dinner—1 hour	1.00
Trip to North End and return—1 hour	1.00
Coupling up train and dumping loads—30 m't's.	30
Time of train leaving Crematory	2.30
Trip to Centre of City and return—45 minutes	45
Time of coupling and dumping load—30 minutes	30
Time of train leaving Crematory	3.45

Times of pick up—

North End—9.45 and 1.30.
Centre—8.25, 11.10 and 2.55.

Last load taken by each team to City Barn.

By taking all left over loads to Crematory, the truck removes 9 loads from North End, and 12 loads from Centre daily.

This schedule was given to the Team Foreman, and a tryout was made. Good results were obtained. The record of the truck with 9 Troy trailers for the month of November was as follows:—

423 loads—1,217 tons removed to Incinerator.
Miles travelled by Truck—908
Cost of operation—$2,769.26
Cost per ton—$2.27

It will be noted that this again cuts the cost per ton by .09c.

Of course, there were days after a snow storm, when a train of 3 trailers proved to be almost too much for one truck, but supposing that all conditions could have been equal for the whole of one month—snow, ice, etc.—we could again have cut this cost.

I give the figures for this same truck for one week from November 1st to 6th (inclusive).

Cost of truck—operating—

Chauffeur	$ 32.30
Helper	28.80
Oil—65 gallons at 50c	32.50
Tires—237 miles at 3c	7.11
Overhead charges—$4.28 x 7	29.96
Cost of operating truck	130.67

Tons collected—296

Cost per ton—hauling—$ .44

Cost of Trailers—operating—

6 team drivers at $30.00	$180.00
6 helpers at $28.80	172.80
Upkeep of 6 teams—$3.00 x 6	108.00
9 trailers—Depreciation, etc.	40.50
	$501.30

Tons collected—296

Cost per ton—collection—$1.69

Total cost of collection and haulage	$631.97

Tons collected—296

Total cost per ton—$2.13

Assuming then that conditions in one part of the City are practically equal to those in another, it seems to be fairly good logic to say that what is true of one truck and its work for one specified week, could naturally be expected to be true of a similar truck running under the same condition! Then why was the Department handicapped with its other units of trailers? Simply because we were one trailer short to make another cycle of 9 trailers. We had only 17 trailers all told.

What We Have Deduced by Experience.

To make Scavenging a paying proposition by trucks and trailers, it is of vital necessity to know exactly what a truck can do, what it costs to operate, and how many ton miles per day can be expected. By operating a mixed installation like the City of Winnipeg has at the present time—haphazard systems are suicidal. The most carefully compiled figures must be got out to enable one to decide what method is the more profitable under given conditions, and incidentally, to enable one to make a better discrimination in regard to future purchases.

The cost per day depends on the daily mileage of haul plus the cost of collection—therefore the cost per unit must equal length of haul plus trailer capacity. Therefore the cost per ton should decrease with the increase of trailer capacity, and an argument based on this theory must eventually decide *that it does not pay to load a truck with garbage in house to house collection* on account of the many starts and stops that are necessary, but it does pay to haul by the train load.

The horse cannot compete with the truck as a means of haulage when the haul is long, but he can yet hold his own when the haul is short.

Ton mileage is what counts, and this can only be procured by keeping the truck moving, and loaded to capacity by train.

The main point at issue is the development of a steady combination of power traction coupled with a systematic horse-drawn collection.

Regular collection means efficiency—other details can be arranged.

The tin teams and singles can gradually be cut out altogether, and tins can be collected by all units available on a set day each week. If a holiday occurs in any one week, *cut out the tin collection for that week*, and your garbage collections and service will not suffer.

An ash service could be figured out along the same lines *if it is deemed necessary*. Now that we have a system of truck haul—distance for a train is of small matter, provided of course, that it is inside the City limits, and a good road could be made on the nuisance ground that would help out our tin collection at the dump considerably. We have been advocating the installation of an ash box at every house where ash storage for the winter is at a premium, and a regular service, (subject to telephone call), has been given where the ash box has been installed. The box recommended is of one cubic yard capacity. A sample box is on view at the main entrance to the Health Department offices, and is being supplied by the Department to ratepayers at a cost of $5.75 unpainted, and $6.75 painted. Several have been bought.

The Acme of Service.

To illustrate what might be called the acme of service, we append the following figures:—

North End—3 teams— 9 loads collected per day.
Centre— 3 teams—12 loads collected per day.

Total—21 loads per day, averaging 2½ tons—Total 53 tons.

Districts covered in 4½ days for garbage, and one day for tins, making 1 week with Saturday afteronon off. One truck in charge. (All costs estimated and approximate.)

Costs—

6 teams—upkeep $2.50 each per day	$15.00
6 drivers at $5.00 per day	30.00
6 helpers at $4.95 per day	29.70
1 chauffeur at $5.30 per day	5.30
1 helper on truck at $4.95 per day	4.95
Cost of truck per day (overhead)	5.00
Cost of gasoline—8 gals. at 50c	4.00
Total cost of outfit for day	$93.95
53 tons collected and hauled to destination, per day, costs	$93.95
Cost per ton collected and hauled—approximate	$1.77

By comparing $1.77 per ton with the table numbered (7) you will immediately notice the saving per ton.

We have endeavored to give a fairly full report on the work of the trucks and trailers as we feel that the wisdom of the inauguration of this new system has to be justified somewhat by us. We are so confident of the ultimate success of the undertaking that we again recommended to the Health Committee that twelve additional trailers be purchased. This was done, and at the time of writing (February 10th), the delivery was made, consisting of 12 Highway drop frame trailers, each with a reversible side dump, and a 5 cubic yard body. This is the beginning of an up-to-date equipment for Scavenging, which already puts the City of Winnipeg in line with any City on the American Continent.

This report will probably be the last issued by the Health Department, as the City Council transferred the whole of the Scavenging and Refuse Disposal plants over to the jurisdiction of the Street Commissioner.

The usual tables are appended to this report, and the consistency of collection and conservation of expenses will easily be noticed by comparing these tables with those of other years. The advanced costs per ton in every case this year are simply those identical with last year, plus the percentage of wages increased, and higher costs of materials. We do not intend to go very deeply into any elaboration of work done, any further than what is shown month by month in each table of costs. We have very naturally gone fairly well into the truck and trailer proposition, as we felt that this should be done. The table giving the comparative statements of City outfits and hired, is new, but to my mind it is the most comprehensive of all. The costs per ton in every case (compared) is of value. No comments are needed, as all the facts are there —an epitome of Scavenging.

By looking at the table giving the actual costs of Scavenging, it will be noticed that the costs for the months of May and June were rather excessive—a sum just over sixty-three thousand dollars. Had we been able to use our new equipment during these two months, this cost would have been minimized, but a glance at the table of collection by hired teams for these two periods shows that there were 1,889 loads of tins collected and 12,561 loads of ashes, with wheelbarrow gangs costing $8,781.97. As our whole appropriation for Scavenging teams was only $75,125.72, you will readily see our position.

Contractors' Closets

We adopted a policy at the beginning of the year, of taking a standing order for the cleaning of workmen's closets at the time that the permit for erection was taken out. This was merely a guarantee from the builder to pay for the cleanings at the end of each month. Whenever a box was cleaned, the man in charge took a duplicate copy of the transaction, and had this signed by the builder or his representative, at the time when the work was done. One copy was sent down to the office, and a proper record kept. The charge for cleaning was one dollar per box, up to the end of June. When the accounts for June were sent out, a footnote was made as follows: "On and after July 1, 1920, each box will be charged for at the rate of $1.50 owing to the extra cost of operation." This has been collected for during the remainder of the year, and has worked very satisfactorily. The standing order has been of great value, as it has enabled the Department to clean all workmen's closets promptly, regularly, and systematically, thus reducing danger to the community to a minimum. Again, we have attended to 132 closets for workmen, during the year, and have not had a single prosecution for nuisance, except one isolated case where the builder had no permit, and consequently dug a hole in the ground to use as a receptacle, instead of making the regulation box.

The cash accruing from this class of work (done without a standing order), for 1919 was $594.47.

The cash for 1920 was $1,874.10. This is surely a step in the right direction, and now that the Scavenging Division has built up this policy, we trust that it will continue as a health necessity, under the Street Commissioner.

Teams and Teamsters.

We began the year with 65 work horses and 2 drivers. In August we sold 11 horses, and took one horse into stock that had been bought. During the year 6 horses died, leaving us at the end of the year with 49 work horses and 2 drivers.

These are working at full strength as follows:—

10 teams on trailers	20 horses
6 teams on garbage and tins	12 "
1 team on night soil	2 "
13 singles on garbage and tins	13 "
2 singles on ashes	2 "
Total	49 horses

Teamsters are paid	$30.00 per week
Single drivers are paid	28.85 " "
Night soil teamster paid	31.15 " "
Night soil helper paid	28.85 " "
Helpers on trailers paid	28.80 " "
Helpers on trucks paid	28.80 " "
Chauffeurs are paid	32.30 " "

The week consists of 48 hours—5 days of 8 hours, 40 minutes and Saturday of 4 hours, 40 minutes.

After 12 months' continuous service all the permanent staff get 1 week's holiday with pay.

After 2 years' continuous service all the permanent staff get 2 weeks' holiday with pay.

Eight statutory holidays are also given with pay.

Incinerator No. 3

We again give the disposal of garbage and other combustible refuse in a table by itself, while the animals destroyed are given on another. The total destruction this year was 59,654,600 lbs., as against 42,722,900 lbs. last year. No coal of any description was used for combustion, and the forced draught this year cost, in Power, $546.22 as against $533.41 last year, *together with* $300.93 *for Coal.* Although the gross cost of operating the machine was nearly $4,000.00 in excess of 1919, the extra tonnage destroyed has kept the gross cost of burning down to 36.9c per ton as against 34.2c last year.

The Elgin Avenue, and the Elmwood machines were closed up during the whole of the year.

Dumps

The East Kildonan manure dump was open for the whole of the year, and 13,755 loads were deposited there, as against 13,482 last year.

The Brookside dump was also open for the whole period, and 5,038 loads found their way there, an increase of 1,083 over 1919.

At the old Saskatchewan Avenue dump there were deposited 4,345 loads of tins and incombustible refuse by private teams, as against 4,363 last year.

Respectfully submitted,

J. H. PEARSON,
Chief Health Inspector.

Table No 1

ACTUAL COST OF SCAVENGING, 1920

1920	Horse Feed and Board No. 1 Stable.	Harness Repairs	Shoeing	Sundays and Holidays in Barn	Wagon Repairs	WAGES		Cost of Trucks and Trailers	Grand Totals.
						City Owned.	Hired and Gangs		
January	$ 1,780 95	$ 85.65	$ 145.11	$ 60.45	$ 66.78	$ 5 206.08	$ 1,476.90	$ 611.55	$ 9,433.47
February	1,666.05	94.75	121.11	63.15	136.19	4 538.25	1,338.30	800.51	8,758.31
March.	1,791.80	96.25	235.53	50.52	212.39	5,027.61	1,471.95	882.86	9,768.91
April	1,732 30	71.00	311.74	60.45	144.82	4,893.57	7,999.58	806.06	16,019.52
May	2,583 75	93.40	313.54	90.00	236.50	6,057.07	25,944.54	287.78	35,606.58
June	2,512.50	93.75	308.76	60.00	162.75	5,534.36	18,855.42	13.93	27,541.47
July	2,518.75	117.65	349.51	75.00	252.85	5,739.20	4,104.90	911.62	14,069.48
August	1,895.00	123.85	173.15	90.00	39.08	4,641.92	555.45	2,643.43	10,161.88
September	1,362.50	67.00	173.00	32.33	199.18	3,358.91	258.50	4,556.16	10,007.58
October	1,401.25	50.75	180 58	60.00	146.87	3,332.38	1,054.90	5,108.46	11,335.19
November	1,118.75	91.50	340.83	60.00	143 00	3,085.42	2,664.20	6,204.06	13,707.76
December	1,165.05	66.60	98.87	25.60	143.00	3,122.64	2,665.02	7,187.45	14,474.23
	$21,528.65	$ 1,052.15	$ 2,751.73	$ 727.50	$ 1,883.41	$54,537.41	$68,389.66	$30,013.87	$180,884.38
							Holidays		1,703.76
							Written off	7,786.42	
								$37,800.29	$182,588.14

Scale of pay increased May 1st, 1920.
These records show the actual monthly expenditures.
The Comptroller's reports include wages on the fortnightly basis, and consequently differ from these figures.

Expenditures:

Jan. to April	$ 43,980.21	
May to December	108,594.06	($8,495.47 Forward)
Trucks	30,013.87	
Gross Cost Scavenging	$182,588.14	

Table No. 2

NUMBER OF LOADS AND WEIGHTS OF REFUSE COLLECTED BY CITY-OWNED TEAMS 1920

	GARBAGE (in lbs)									TINS (in lbs)								
	Teams			Singles			Combined			Teams			Singles			Combined		
	Loads	Av Weight	Total weight	Loads	Av weight	Total Weight	Loads	Av Weight	Total Weight	Loads	Av Weight	Total Weight	Loads	Av Weight	Total weight	Loads	Av weight	Total Weight
January	619	3647	2,257,800	658	2663	1,752,700	1277	3140	4 010,500	112	2364	264,860	382	2228	851,100	494	2259	1,115,960
February	561	3582	2,009,100	589	2657	1,565,500	1150	3108	3,574,600	119	2357	280,500	375	2064	774,000	494	2134	1,054,500
March	635	3642	2,313,000	679	2662	1,808,000	1314	3136	4,121,000	116	2401	278,570	425	2067	878 600	541	2138	1,157,170
April	607	3729	2,264,100	640	2693	1,723,700	1247	3197	3,987,800	126	2400	302,400	416	2173	903,970	542	2225	1,206,370
May	606	3760	2,278,900	656	2758	1,809,600	1262	3239	4,088,500	161	2405	387,205	465	2078	966,600	626	2162	1,353,805
June	641	3744	2,400,200	698	2802	1,956,400	1339	3253	4,356,600	156	2455	383,100	369	2126	784,700	525	2224	1,167,800
July	634	3586	2,273,800	634	2735	1,734,200	1268	3160	4,008,000	143	2325	332,500	374	2139	800,000	517	2190	1,132,500
August	311	3551	1,104,600	610	2691	1,641,600	921	2981	2,746,200	105	2361	247,950	360	2068	744,500	465	2134	992,450
September	211	4208	888,000	373	2828	1,055,200	584	3327	1,943,200	89	2347	208,900	308	2095	645,400	397	2151	854,300
October	154	4266	657,100	335	2775	929,800	489	3245	1,586,900	111	2371	263,200	325	2076	674,800	436	2151	938,000
November	123	4378	538,600	278	2778	775,100	401	3276	1,313,700	78	2521	196,700	360	2021	727,800	438	2110	924,500
December	126	4341	547,000	316	2766	874,300	442	3215	1,421,300	85	2362	200,800	290	2221	644,200	375	2253	845,000
Totals	5228	3736	19,532,200	6466	2725	17,626,100	11694	3177	37,158,300	1401	2388	3,346,685	4449	2111	9,395,670	5850	2178	12,742,355

	ASHES (in lbs)									Night Soil (in lbs)			
	Teams			Singles			Combined			Teams only			
	Loads	Av Weight	Total Weight	Loads	Av Weight	Total Weight	Loads	Av Weight	Total Weight	Loads	Av Weight	Total Weight	Total Loads Collected
January	120	3000	360,000	350	3000	1,050,000	470	3000	1,410,000	47	4200	197,400	2,288
February	140	3000	420,000	248	3000	744,000	388	3000	1,164,000	44	4100	180 400	2,076
March	150	3000	450,000	316	3000	948,000	466	3000	1,398,000	49	4000	196,000	2,370
April	92	3000	276 000	256	3000	768,000	348	3000	1,044,000	46	4100	188,600	2,183
May	78	2500	195,000	200	2500	500,000	278	2500	695,000	45	4300	193,500	2,211
June	50	2500	125,000	120	2500	300,000	179	2500	425,000	48	4000	192,000	2,082
July	50	2500	125 000	70	2500	175,000	120	2500	300,000	47	4100	192,700	1,952
August	12	2500	30,000	120	2500	300,000	132	2500	330,000	46	4000	184,000	1,564
September	18	2500	45,000	118	2500	295,000	136	2500	340,000	46	4100	188,600	1,163
October	30	2500	75,000	120	2500	300,000	150	2500	375,000	45	4200	189,000	1,120
November	70	2500	175,000	220	2500	550,000	290	2500	725,000	48	4000	192,000	1,177
December	64	2500	160,000	215	2500	537,500	279	2500	697,500	49	4000	196,000	1,145
Totals	874	2787	2,436,000	2353	2748	6,467,50	3227	2759	8,903 500	560	4089	2 290 200	21,331

Table No. 3

COST OF SCAVENGING BY CITY OWNED TEAMS DURING 1920

1920	GARBAGE							TINS						
	Teams		Singles		Combined		Total Cost	Teams		Singles		Combined		Total Cost
	Load	Ton	Load	Ton	Load	Ton		Load	Ton	Load	Ton	Load	Ton	
January	$3.90	$2.14	$3.15	$2.38	$3.53	$2.24	$ 4,509.02	$3.57	$3.02	$2.95	$2.64	$3.09	$2.73	$ 1,527.15
February	3.85	2.15	3.08	2.32	3.46	2.22	3,979.84	3.57	3.03	2.93	2.83	3.08	2.89	1,524.31
March	3.80	2.09	3.07	2.29	3.41	2.18	4,492.99	3.56	2.98	2.92	2.82	3.05	2.86	1,655.25
April	3.94	2.11	3.15	2.34	3.54	2.21	4,416.85	3.73	3.11	2.99	2.75	3.16	2.84	1,716.98
May	5.03	2.67	3.97	2.88	4.48	2.76	5,657.36	4.60	3.81	3.73	3.59	3.95	3.65	2,476.78
June	4.81	2.57	3.74	2.67	4.25	2.62	5,702.68	4.58	3.72	3.59	3.38	3.88	3.49	2,039.69
July	5.15	2.87	4.11	3.00	4.63	2.93	5,873.80	5.50	4.74	3.97	3.71	4.39	4.01	2,273.86
August	5.13	2.89	3.98	2.96	4.37	2.93	4,029.52	5.13	4.34	3.84	3.72	4.13	3.87	1,923.40
September	5.06	2.40	4.04	2.85	4.41	2.65	2,576.04	5.17	4.42	3.88	3.70	4.17	3.88	1,658.74
October	5.46	2.55	4.32	3.11	4.68	2.88	2,290.96	5.34	4.49	4.04	3.89	4.37	4.07	1,909.02
November	5.15	2.36	4.06	2.91	4.39	2.68	1,763.92	5.28	4.20	3.91	3.86	4.15	3.93	1,820.01
December	5.13	2.36	3.98	2.88	4.31	2.68	1,906.12	4.96	4.22	4.07	3.67	4.28	3.79	1,605.33
	$4.51	$2.41	$3.65	$2.67	$4.03	$2.54	$47,199.10	$4.55	$3.81	$3.31	$3.35	$3.78	$3.47	$ 22,130.52

	ASHES							NIGHT SOIL			Gross Cost of Scavenging	Profits on Outside	Net Cost of Scavenging
	Teams		Singles		Combined		Total Cost	Teams Only		Total Cost			
	Load	Ton	Load	Ton	Load	Ton		Load	Ton				
January	$1.72	$ .86	$1.53	$1.02	$1.58	$1.05	$ 744.21	$6.32	$3.00	$ 297.11	$ 7,077.49	$ 222.27	$ 6,855.22
February	1.88	1.25	1.55	1.03	1.67	1.11	650.22	6.15	3.00	270.60	6,424.97	115.67	6,309.30
March	1.78	1.18	1.51	1.01	1.60	1.06	745.74	6.11	3.05	299.65	7,193.63	136.48	7,057.15
April	1.93	1.29	1.54	1.03	1.64	1.09	573.85	6.35	3.10	292.18	6,999.86	122.88	6,876.98
May	2.20	1.75	1.89	1.51	1.98	1.58	550.87	7.68	3.56	345.65	9,030.66	112.15	8,918.51
June	2.29	1.82	1.85	1.47	1.97	1.57	336.23	7.50	3.75	360.06	8,438.66	254.84	8,183.82
July	2.53	2.00	2.09	1.66	2.27	1.82	273.18	8.13	3.98	382.32	8,803.16	210.30	8,592.86
August	2.68	2.14	1.93	1.54	1.99	1.59	263.94	7.94	3.97	365.26	6,582.12	178.92	6,403.20
Sept.	2.35	1.83	1.90	1.52	1.96	1.57	267.48	7.94	3.88	365.41	4,867.67	430.70	4,436.97
October	2.39	1.89	2.01	1.61	2.09	1.67	314.14	8.36	3.96	376.51	4,890.63	256.25	4,634.38
Nov.	2.28	1.81	1.71	1.37	1.85	1.48	537.61	7.96	3.98	382.46	4,504.00	239.00	4,265.00
Dec.	2.36	1.88	1.69	1.35	1.84	1.47	515.77	7.72	3.86	378.43	4,405.65	144.94	4,260.71
	$2.04	$1.46	$1.65	$1.20	$1.78	$1.29	$5,773.24	$7.34	$3.59	$ 4,115.64	$79,218.50	$ 2,424.40	$ 76,794.10

Table No. 4

CREDITS FROM VARIOUS CIVIC DEPARTMENTS ON REQUISITION, 1920.

1920	Fire Halls	City Pound	Special	Stable No. 1	Police Station	Small Pox	Machine Shop	Engineer	Civic Bld'gs	Cash	Totals
January	$ 126.90	$ 4.30	$ ..	$ 114.30	$ 5.40	$ 21.00	$	$	$ 51.20	$ 166.70	$ 489.80
February	118.80	1.10	..	76.80	..	33.00	2.70	8.10	23.70	46.00	310.20
March	124.20	1.30	..	74.40	4.05	39.00	1.80	20.70	27.00	64.50	356.95
April	121.50	6.10	..	82.00	..	27.00	9.00	17.10	21.60	52.60	336.90
May	145.20	16.40	..	127.05	..	24.00	5.50	11.00	21.60	105.00	455.75
June	121.00	3.10	..	103.40	8.80	12.00		4.40	21.60	214.00	488.30
July	121.00	4.00	5.00	126.50		9.00			21.60	173.00	460.10
August	121.00	2.40	..	128.00	8.80	18.00		40.50	21.60	219.50	559.80
September	121.00	4.40	213.70	119.90		27.00			21.60	248.35	755.95
October	118.25	.20	10.80	102.30			4.95		21.60	279.35	537.45
November	118.25			164.60	4.40	12.60	22.00		22.70	229.95	574.50
December	118.25	3.30	4.95	132.30	4.40				22.70	75.15	361.05
Totals	$ 1,475.35	$ 46.60	$234.45	$ 1,351.55	$ 35.85	$222.60	$ 45.95	$101.80	$298.50	$ 1,874.10	$ 5,686.75

Table No. 5

NUMBER OF LOADS AND WEIGHTS OF REFUSE COLLECTED BY TRUCKS AND TRAILERS WITH COSTS, 1920

1920	GARBAGE						TINS					
	Truck Loads	Trailer Loads	Total Loads	Weights (in lbs.)	Gross Cost	Cost per Ton	Truck Loads	Trailer Loads	Total Loads	Weights (in lbs.)	Gross Cost	Cost per Ton
January												
February												
March												
April												
May												
June												
July	145		145	547,600	$ 905.35	$ 3.30	1		1	3,000	$ 6.27	$ 4.18
August	108	297	405	2,025,000	2,643.43	2.60						
September	176	556	732	3,847,700	4,556.16	2.36						
October	159	647	806	4,246,700	5,108.46	2.40						
November	148	720	868	4,610,300	5,535.72	2.40	30		30	118,400	138.90	2.35
December	145	696	841	4,551,600	6,013.37	2.64	13		13	62,700	65.45	2.11
Totals	881	2,916	3,797	19,828,900	$24,762.49	$ 2.49	44		44	184,100	$210.62	$ 2.28

	ASHES					
	Truck Loads	Trailer Loads	Total Loads	Weights (in lbs.)	Gross Cost	Cost per Ton
January	171		171	1,197,000	$ 611.55	$ 1.01
February	240		240	1,680,000	800.51	.95
March	272		272	1,904,000	882.86	.92
April	251		251	1,757,000	806.06	.90
May	78		78	546,000	287.78	1.05
June						
July						
August						
September						
October						
November	96		96	644,000	529.44	1.64
December	276		276	1,932,000	1,108.63	1.14
Totals	1,384		1,384	9,660,000	$5,026.83	$ 1.04

NUMBER OF LOADS AND WEIGHTS OF REFUSE COLLECTED BY HIRED TEAMS WITH COSTS, 1920

1920	GARBAGE Loads	Weights lbs	Gross Cost	Average Weight Load	Gross Cost per Load	Gross Cost per Ton	TINS Loads	Weights lbs	Gross Cost	Average Weight Load	Gross Cost per Load	Gross Cost per Ton
January												
February												
March												
April							90	225,000	$ 324.00	2,500	$3.60	$ 2.86
May							615	1,237,500	3,039.30	2,012	4.95	4.91
June	42	116,700	$207.90	2,778	$4.95	$3.58	1,274	2,878,160	6,306.30	2,259	4.95	4.38
July	81	237,500	523.95	2,932	6.46	4.40	465	1,023,000	2,306.70	2,200	4.95	4.50
August	9	28,200	44.50	3,133	4.95	3.17	62	151,700	306.90	2,446	4.95	4.03
September	Nil						39	96,200	193.05	2,466	4.95	4.02
October	1	3,400	5.50	3,400	5.50	3.20	195	436,900	965.20	2,240	4.95	4.42
November	1	3,200	5.50	3,200	5.50	3.44	250	657,900	1,237.50	2,631	4.95	3.79
December	6	19,600	33.00	3,266	5.50	3.30	187	470,500	925.15	2,516	4.94	3.94
Totals	140	408,600	$820.35	2,918	$5.85	$4.02	3,177	7,176,860	$15,604.10	2,259	$4.91	$ 4.34

ASHES

1920	Loads	Weights lbs	Gross Cost	Average Weight Load	Gross Cost per Load	Gross Cost per Ton	Cost of Helpers and Wh'lb'row Gangs
January	732	2,196,000	$ 1,476.90	3,000	$ 2.02	$ 1.34	
February	660	1,980,000	1,338.30	3,000	2.02	1.35	
March	726	2,178,000	1,471.95	3,000	2.02	1.34	
April	3,000	7,500,000	4,241.40	2,500	1.89	1.51	$ 3,434.18
May	8,061	20,152,500	16,299.97	2,500	2.02	1.61	6,605.27
June	4,500	11,250,000	10,164.52	2,500	2.25	1.80	2,176.70
July	320	800,000	1,274.25	2,500	3.98	3.18	
August	68	170,000	204.05	2,500	3.00	2.40	
September	20	50,000	65.45	2,500	3.27	2.61	
October	36	90,000	84.20	2,500	2.34	1.87	
November	600	1,500,000	1,421.20	2,500	2.37	1.89	
December	850	2,125,000	1,706.87	2,500	2.00	1.63	
Totals	19,573	49,991,500	$39,749.06	2,503	$ 2.03	$ 1.59	$12,216.15

Table No 7

COMPARATIVE STATEMENT OF LOADS, WEIGHTS AND COSTS OF CITY OWNED OUTFITS AND HIRED, 1920

	GARBAGE				TINS				ASHES			
1920	Loads	Tonnage	Cost	Cost per Ton	Loads	Tonnage	Cost	Cost per Ton	Loads	Tonnage	Cost	Cost per Ton
City Owned Singles and Doubles Combined	11,694	18,579	$47,199.10	$2.54	5,850	6,371	$22,130.52	$3.47	3,227	4,452	$ 5,773.24	$1.29
City Owned Trucks and Trailers Combined	3,797	9,914	24,762.49	2.49	44	92	210.62	2.28	1,384	4,830	5,026.83	1.04
Hired Teams	140	204	820.35	4.02	3,177	3,588	15,604.10	4.34	19,573	24,996	39,749.06	1.59
Totals	15,631	28,697	$72,781.94	$2.53	9,071	10,051	$37,945.24	$3.77	24,184	34,278	$50,549.13	$ 1.47

Cost of Scavenging by Service—

Garbage	$ 72,781.94
Tins	37,945.24
Ashes	50,549.13
Wheelbarrow Gangs	12,216.15
Night Soil	4,115.64
Credits	3,262.35
Holidays	1,703.76
	13.93
Total Gross Cost of Scavenging	$182,588.14

Table No. 8

STATEMENT SHOWING THE AMOUNT OF REFUSE DESTROYED AT CREMATORY No. 3 DURING 1920 AND COST.

1920	Garbage (in lbs.)	Animals (in lbs.)	Total Destruction (in lbs.)	Ash Cartage	Coal used (in lbs.)	Power Cost and Light	Wages	Cost of Coal	Gross Cost of Destruction	Revenue	Net Cost of Destruction	Gross Cost per Ton	Net Cost per Ton
Jan	4,209,500	25,100	4,234,600			$67.10	$ 687.55		$ 754.65	$ 203.61	$ 551.04	35.6c	26.0c
Feb	3,744,600	24,200	3,768,800			39.68	634.82		674.50	208.50	466.00	35.8	24.7
Mar	4,360,600	29,000	4,389,600			35.59	706.80		742.39	389.28	353.11	33.8	16.0
April	4,233,400	40,600	4,274,000			32.59	662.07		694.66	529.68	164.98	32.5	7.7
May	4,318,700	19,000	4,337,700			33.77	901.01		934.78	296.26	638.52	43.0	29.4
June	4,627,600	13,600	4,641,200			39.22	969.18		1,008.40	166.70	841.70	43.4	36.2
July	4,947,600	21,600	4,969,200			36.63	1,032.59		1,069.22	210.30	858.92	43.0	34.5
August	4,936,200	7,000	4,943,200			39.00	894.11		933.11	93.40	839.71	37.7	33.9
Sept	5,901,000	6,200	5,907,200			56.96	984.28		1,041.24	79.08	962.16	35.2	32.5
Oct	5,958,900	13,500	5,972,400			50.80	940.37		991.17	104.70	886.47	33.1	29.6
Nov	6,061,200	26,500	6,087,700			59.78	995.16		1,054.94	140.00	914.94	34.6	30.0
Dec	6,105,700	23,300	6,129,000			55.10	1,055.43		1,110.53	122.30	988.23	36.2	32.2
	59,405,000	249,600	59,654,600			$546.22	$ 10,463.37		$ 11,009.59	$ 2,543.81	$ 8,465.78	36.9	28.3

Crematories 1 and 2 closed down for the whole of the year 1920

Table No. 9

ANIMALS DESTROYED AT CREMATORIES DURING 1920 WITH WEIGHTS OF SAME—REFUSE DEPOSITED ON DUMPS, 1920

1920	CREMATORY NO. 3, SASKATCHEWAN AVE.						ELGIN AVE.	ELM WOOD	MANURE		TINS & REFUSE	
	Horses	Weights (lbs.)	Cattle	Weights (lbs.)	Dogs	Weights (lbs.)	Crem. 1	Crem. 2	East Kildonan Loads	Brookside Loads	Private Loads Old Dump Sask. Av. Loads	Weights lbs.
January	16	22,700			43	2,400	Closed all Year	Closed all Year	954	348	392	921,800
February	16	22,700	1	900	11	600			1,075	338	283	591,100
March	21	28,500			13	500			1,053	291	279	582,700
April	27	37,700			61	2,900			1,299	416	325	850,000
May	10	14,800	1	1,000	65	3,200			1,353	495	329	722,600
June	7	11,100	1	1,100	31	1,400			1,399	437	540	1,305,700
July	12	18,350	2	950	40	2,300			1,303	597	535	1,400,000
August	4	5,600	1	200	24	1,200			1,243	549	342	794,600
September	4	4,700	1	900	11	600			1,048	534	384	887,800
October	8	12,500	1	1,000					1,019	420	442	1,079,700
November	19	26,500							1,007	321	316	679,200
December	16	21,800			33	1,500			1,002	382	178	605,400
Totals	160	226,950	8	6,050	332	16,600			13,755	5,038	4,345	10,420,600

REPORT OF SMOKE INSPECTOR

A. J. Douglas, Esq., M.D.,
Medical Health Officer.

Dear Sir:—

I have the honor to submit herewith my report on smoke nuisances and their abatement for the year 1920, also other matter pertaining to fuel and general conditions based on economy and community welfare.

It will be noted the following table also includes observations, inspections, etc., made by my predecessor from January to June, 1920.

TABLE SHOWING NUMBER OF OBSERVATIONS OF CHIMNEYS AND SMOKE STACKS, INSPECTIONS OF BOILERS AND BOILER EQUIPMENT, WITH NOTICES SERVED MONTH BY MONTH FOR 1920.

	January	February	March	April	May	June	July	August	September	October	November	December	TOTALS
Observations	22	31	38	46	28	11	31	20	30	32	23	12	324
Inspections	54	65	53	63	33	65	40	56	135	81	65	71	781
Total	76	96	91	109	61	76	71	76	165	113	88	83	1105
Notices—													
Statutory	6	2	7	11	2		3	4	7	4	9	9	64
Verbal	15	19	22	28	9	5	21	9	37	41	13	23	242
Total	21	21	29	39	11	5	24	13	44	45	22	32	306

Owing to fuel conditions no Police Court proceedings were instituted, but it was necessary in three instances to submit a report on conditions prevailing at three plants. Two of the firms concerned remedied existing smoke nuisances and the third, a Public Institution, is expected to entirely remove the cause of objectionable smoke emissions during the coming Summer. Several power plants have installed automatic stokers of the coking type with satisfactory results as regards smoke but apparently have not reached the maximum efficiency of boiler rating expected.

In other instances nuisances have been remedied by substituting other fuel and also by mixing.

Lignite and sub-bituminous coal has been very satisfactory for this purpose but could only be applied in instances where there was ample boiler capacity.

In other cases where the boilers were overloaded, the coking or alternate method of firing was adopted. This reduced the smoke density and period of emission but not sufficiently to overcome the provisions of the by-law. This matter is dealt with more fully in a later section of this report.

A method of indexing all power and heating plants has been instituted. The information not only refers to the class of boilers, etc., but also the dates of inspection, notices and other matter for future reference.

Fuel Conditions

Fuel conditions, especially during the winter, were very unsatisfactory. Wood was scarce and very high in price.

Coal from Alberta predominated and as this was the first year the Alberta mine owners really entered this market, every chance has been given to utilize this fuel in order that we may have a definite market at home.

Results from the standpoint of smoke density have been carefully noted and I cannot state that conditions have been altogether satisfactory.

I am firmly convinced, however, that the general run of steam coal consumed in this City during 1920 has not in all cases represented the true quality of the fuel. Strange to state this has been the case with American Pocohontas although the quantity available was limited. The latter, being a semi-bituminous coal should be burnt without emitting an objectionable smoke. Results of observations of smoke density would suggest a high volatile coal as being substituted for Pocohontas.

Users of steam coal from Alberta have also been dissatisfied regarding the high ash content from an economic standpoint and reverted to the use of Youghiogheny, Miller's Creek, etc., both of which are American coals, generally unsatisfactory from a smoke viewpoint although good coking coals.

In fairness, however, to the Alberta mine operators it should be remembered that during the War Manitoba had to rely on the West for coal owing to being refused American shipments.

Alberta had already oversold but gave Manitoba the coal necessary for the winter months.

There has been a lack of labor at the mines and operators were unable to man their mines to make a commercial grade and had to ship straight railroad grades.

These, on occasions ran higher in ash and "fines" than Commercial coal should. During 1921, however, all Commercial coal will be hand-picked and free of "bone" or rock and in uniform sizes.

Under such conditions I have endeavored to keep objectionable smoke nuisances as low as possible, without unduly harassing the steam plant owner.

That Alberta has a good grade of fuel is not doubted, but naturally the business man or any other person cannot be expected to pay a high price for a poor grade coal. More attention should be paid to proper grading if it is desired to hold the Manitoba market.

Alberta has, by far, the largest coal reserve in Canada, the amount being 1,072,627,400,000 Metric Tons (Dominion Government estimate). These beds are Lignite, Sub-bituminous and Bituminous in character. Anthracite is also available.

When one hears of a possible coal shortage with the aforementioned fuel reserve, surely there is something wrong.

For the benefit of all concerned, conditions regarding mining, transportation, storage, etc., should be given careful consideration by the authorities.

Sub-bituminous free burning coal has proved itself satisfactory for domestic use.

Coke

One of the most satisfactory domestic fuels is, of course, Coke, provided it is dry and ash content does not exceed a reasonable limit. Apparently, the local fuel has been high in moisture making it hard to ignite and the public consequently turned to the freer burning coals.

The problem of coking in gas producers our Western Bituminous coals, and utilizing the gas and by-products, deserves serious consideration.

Briquetting

The Dominion Government in combination with the Manitoba and Saskatchewan Governments are at present constructing a plant for the manufacture of Briquettes from low grade lignite.

At the present time there is not sufficient data available as to the probable cost so that no reliable estimate can be given as to its probable future in this market.

Pulverized Coal

Except for the installation of a pulverized fuel plant at the Manitoba Rolling Mills, Selkirk, this method of burning coal is practically new as regards this district.

It is an admitted fact that the ordinary method of burning coal is wasteful. In pulverized form all theories agree that this is the best method of obtaining the heat from coal and consequently no objectionable smoke. The reasons given are: That all combustibles discharged into the furnace are destroyed and that they are burned under perfect conditions.

The method employed to prepare the coal to pulverized form consists in first removing the moisture content. Generally this is facilitated by a preliminary crushing of the coal. The dried coal is then ground to a fine powder in a specially constructed mill, the standard of fineness being that at least 85 per cent. will pass through screens having two hundred meshes to the square inch.

The coal is then discharged into the furnace by an air blast of sufficient carrying power to form a cloud of mixed air and fuel. Properly proportioned furnaces, both as regards form and dimensions, are very important, besides proper air mixing.

Whether or not this fuel will be used here in the near future remains to be seen. I understand, however, that a company may be formed for preparing and delivering this class of fuel, very shortly.

There are, however, certain conditions which it would be necessary to overcome before applying this method for Power or Domestic use.

There is not the slightest doubt that on fuel consumption, results show an appreciative saving over the hand firing method.

Smoke Conditions in Winnipeg

Although present conditions relative to smoke nuisances are not serious, an improvement is both desirable and possible, especially as regards Railway Locomotives and Roundhouses. These are responsible for a large percentage of the smoke emitted during the entire year.

In one district in Fort Rouge, very unsatisfactory conditions exist principally owing to dense smoke from the Roundhouse and Locomotives.

One of the greatest problems in the matter of objectionable smoke in cities generally is in connection with the above.

Several years ago various Railway Companies in Chicago installed in their Roundhouses an apparatus for producing mechanical draft, in order to exhaust the smoke from Locomotives while in the Roundhouse. The smoke jacks were connected into a large duct, thence through an exhaust fan into a large washing chamber where the volume of smoke passed through water sprays. This precipitated the greater part of carbon in suspension and allowed the cleaned gaseous products of combustion to escape into the atmosphere. It was found, however, that due to the Sulphurous Acids formed, there was a corrosive effect on the iron ducts, etc. This has been overcome by the use of Asbestos board and other material.

It is my intention shortly to interview the Railway officials and I feel sure they will recognize the importance of doing something to improve conditions for the benefit of the citizens generally.

The business men of Winnipeg have, in the past, willingly co-operated with this Department to eliminate the smoke nuisance and although the Act does not apply directly to Locomotives, it is reasonable to assume that this matter will receive their favorable consideration also. Legislation for citizens, not applicable to Railways is unfair and here is an opportunity for the Railway Companies to show what can be attained by co-operation without legislation.

They have already installed brick arches to a large number of Locomotives and more care on the part of firemen would reduce the "running" density of smoke to a minimum.

High Pressure Plants

There are several high pressure power plants that have been under observation during the past few months. One company will install automatic stokers during the next few weeks.

Other plants still persist in the use of bituminous coal although the furnace settings are entirely unsuitable both from an economic standpoint and the smoke nuisance. Some of these formerly overcame the provisions of the by-law by using Pocohontas or Cadomin coal which, by careful firing would produce no objectionable smoke.

Cadomin has not been available since early in the spring and very little Pocohontas reached the City. The result was a change to high volatile fuel. Although various methods of firing were used, an objectionable smoke was still emitted from the chimneys.

Other plants who formerly complied with the Smoke Ordinance by the use of coke breeze and hard coal screenings, had to alter their fuel on account of excess of "dust," and coke breeze was not available in sufficient quantity.

Apartment Blocks

The greater portion of the total number of notices served were relative to this class of building. It appears to be the prevalent idea that a high volatile coal is essential.

It may not be generally know that there are instances where the janitor's wife attends to the "firing" during the day, the consequence being that "green" fires are the rule. This, combined with Youghiogheny or similar high volatile fuel creates a very dense black smoke and consequent nuisance in the vicinity.

A medium sub-bituminous coal much cheaper in cost could be utilized in many blocks with a saving of many dollars per day. In choosing the fuel more care should be exercised, and the area of grates must be considered. High ash coals cannot burn satisfactorily on grates with only 30 to 35 per cent. air space without forced draft. If grates were installed with air spaces not less than one-half inch wide the smoke problem in many cases would be easier to handle.

The most common defects in plants where horizontal return tubular boilers are installed is the lack of sufficient draft, inadequate air space in grates, and insufficient combustion space.

Preventable heat losses are: Loss from radiation. Air leaks in boiler setting. Tubes not properly cleaned or not attended to regularly.

It would be to the interest of owners, especially in the smaller blocks, to have an inspection made each year by an expert. The results in many instances would be astonishing and well worth the expense.

In this respect the Alberta Government representative resident in this City has already been of much service, and his advice is at the disposal of all citizens free of cost.

According to the report of the Council of Industry, in reference to an enquiry re rents in this City, it was ascertained that the fuel accounts of some Apartment Blocks absorbs as high as 35 per cent. of the gross revenue.

Certain Apartment Blocks, business premises and high pressure plants have installed apparatus from an economic and smoke prevention viewpoint and have done so, not because of pressure from the authorities, but because it is good business.

Legislation is not for those who recognize the citizens' wishes and act accordingly, but for those who persist in acting in a manner contrary to the comfort and welfare of the community.

I must state, however, that several firms in the City have installed apparatus which have not given the results anticipated and eventually had to discard them. One of these firms, however, is already installing other apparatus.

There is no excuse whatever for objectionable smoke as defined by the Public Health Act, viz:

> "The emission of dense black or grey smoke from any chimney or smoke stack used in connection with any manufactory, stationary engine or boiler, in any apartment house, office building, hotel, theatre, place of public entertainment, school building, institution or any other structure, or in any other building used as a factory or for any purpose of trade or for any other purpose whatever, shall be deemed and is hereby declared to be a public nuisance."

Although the presence of soot or carbon only represents from one to three per cent. loss of the total amount of fuel consumed under high and low pressure boilers, its presence shows incomplete combustion.

All persons then, who are responsible for creating a smoke nuisance are not only wasting money (which the public have ultimately to repay), but also cause extra expenditure to be borne by the community generally, owing to defacement of building materials, clothing, paint, etc.

The fact also appears firmly established that there is a well-defined relation between smoke and fog.

In the report of a special committee appointed by the City of Chicago, they report decidedly that the amount of sunshine in a City is a criterion as to the amount of smoke present.

Further, the continued breathing of smoke-laden air is not conducive to healthful conditions but has a decided tendency to lower the physical condition of persons and thus render them more susceptible to disease. This applies especially to pneumonia.

If then, coal can be burned under smokeless conditions, why should the emission of objectionable smoke be tolerated?

Numerous inventions have been made for the prevention of smoke during the past few years, based on the following points:

(1) Coal fed to the furnace at a continuous rate and uniform supply.

(2) Air supply slightly in excess of theoretical supply through the fuel bed and auxiliary supply at front or rear of furnace.

(3) Furnace temperature sufficiently high to ignite the gases evolved.

(4) Combustion chamber of sufficient dimensions for the mixing of gases and air in order to have complete combustion before the mixture reaches the boiler shell.

In practically all instances where black smoke is emitted from the chimney there is a low C O2 reading and a varying percentage of C O.

Carbon burned to C O2 (Carbon Dioxide) means perfect combustion and theoretically produces 14,600 B. T. U's. during the combination.

Carbon burned to C O. (Carbon Monoxide) produces only 4,400 B. T. U's.

Hydrogen and Hydro-Carbon gases will also be evolved with the C O, and the B. T. U's. lost are considerable.

The devices for the economical burning of fuel and prevention of objectionable smoke are as follows:

Steam jets;
Special settings by an arrangement of baffles and arches to ensure proper air mixing;
Down draft furnaces;
Sprinkling stokers;
Overfeed stokers;
Underfeed stokers;
Travelling chain grates;
Coking furnaces.

A number of the above mentioned appliances are already installed in various plants throughout the City with satisfactory results.

All plants where a bituminous coal is considered necessary should install special boiler settings or suitable stokers. Other plants might utilize either low grade lignite or sub-bituminous coal.

In conclusion I would respectfully suggest that fuel conditions are now normal and that instructions be given to enforce the provisions of the Public Health Act for the welfare of the citizens generally.

Your obedient servant,
P. PICKERING,
Smoke and Supervising Inspector.

REPORT OF THE TENEMENT INSPECTOR

A. J. Douglas, Esq., M.D.,
Medical Health Officer.

Dear Sir.—

I have the honor to submit the following report on tenement inspection and action taken in housing conditions during the year 1920.

We received 185 complaints relating to insanitary conditions in tenement and apartment blocks and 753 inspections were made. The complaints brought to our notice such conditions as the following: Dirty rooms, garbage improperly kept, overcrowding, lack of privacy in lavatories used in common, dirty halls and stairs, frozen plumbing, choked drains, defective gas stoves, defective roofs, bed bugs, cockroaches, lack of heat, dirty lavatories, refuse in basements, rats, shaking rugs on verandahs, dirty yards, defective garbage chutes, insufficient light, lack of fly screens, etc.

Constant supervision is required, especially over the older apartment buildings and considerable work was done during the year towards improving and remedying such conditions as stated above. A number of the old tenements are being repaired and improved each year, alterations being made in providing better light and ventilation, cleansing and limewashing of basements, repair of subsoil drains to remedy dampness, etc.

A number of old tenements were vacated and the buildings overhauled and renovated throughout. In these cases we take the opportunity of recommending additional plumbing fixtures—a watercloset and sink at least for each family instead of fixtures used in common. We are pleased to be able to report that there is more co-operation each year between apartment owners and the Department in the matter of health conditions. In addition, plans of proposed alterations are frequently submitted to us from the Building Inspector's Department, and our suggestions are given effect to.

The unlawful conversion of dwellings into tenements and the "farming out" of rooms is still on the increase. Many of the houses occupied in this manner are too large for occupation by the average householder, but with some alteration and the provision of additional plumbing fixtures, etc., such premises might be made suitable for occupation by a number of families. This was done in several instances during the year and, whilst the premises do not comply with the strict letter of the law relating to tenements, they are at least sanitary and the occupants are living in more hygienic conditions.

We were obliged to deal with a number of infractions during the year although many more have been held over until the housing shortage is less acute. One of the premises which came to our notice was a one-family dwelling of two and a half storeys in height and of frame construction. This house which contained 13 rooms had been occupied since it was built by the owner and his family only. The house was sold during the year and the new owner immediately rented it out in rooms to 6 separate families. The only additional conveniences provided were two sinks and a garbage chute, all constructed without permit. One of the sinks was installed in the front room on the ground floor and the other in the attic. The attic rooms have low sloping ceilings and are not well lighted. The garbage chute was carried from the cellar to the second floor inside the building, a very dangerous arrangement in case of fire. The owner admitted that he had bought the house with the intention of renting out the rooms to families and making money on the proposition.

Another building that came under our consideration consisted originally of a double dwelling. On inspection we discovered the following: Ground floor—two rooms occupied by a man, wife and child; rent $35.00 per month. Three rooms occupied by a man, wife and three children; rent $45.00 per month. Three rooms vacant. No baths or waterclosets on this floor. Second floor—two rooms occupied by a man, wife and child, rent $20.00 per month. Three rooms occupied by a man, wife and child; rent $35.00 per month. Three rooms occupied by a woman and daughter; rent $45.00 per month. One room vacant. Attic—two rooms not occupied. These rooms are grossly deficient in natural light (1 46 and 1 30 respectively instead of 1 10 as required). There were only 3 sinks in the premises, and these were on the ground floor and inaccessible to the tenants on the upper floor. There was only one bathroom, semi-dark, and it was used in common by all the tenants. A gas stove was fitted in each suite and none of these had hoods or pipes attached. The total rent collected was $178.00 per month and this would be increased as the vacant rooms became occupied.

It is unnecessary to make reference to other premises such as above, which came to our knowledge during the year. Many of our good residential districts have changed completely as house after house has become occupied in the manner above referred to.

Housing conditions are gradually becoming worse throughout the City and in several districts most of the houses are now illegally occupied as tenements.

We had hoped that building would have opened up this year and that many new dwellings would have been built but prices of material did not decline sufficiently and builders are apparently still holding back until material becomes cheaper. As stated in previous reports, the shortage of houses has been so acute that we have had to withhold action in many cases that otherwise should have been dealt with. Even if prices of material decline and building becomes brisk it is unlikely that the supply of houses will equal the demand. We had to serve ejectment notices in ten instances where the crowding of families was so bad as to demand a reduction. It is not much use ejecting families when we know that they will just move to other premises that are no more suitable. Small houses are in immediate demand and we trust that when building operations begin small dwellings of four and five rooms will be in the majority. We believe that many families would prefer to live in a small cottage alone instead of in cramped quarters with other families. On the other hand we fear that a large number have become accustomed to living with other families and we shall require to take action.

If a sufficient number of small houses were available when pressure is applied, many families would be induced to purchase their own homes. The amount or extent of our pressure can only be in ratio to the available accommodation. The crowding together of families in small space with little or no privacy and not even sufficient sleeping accomodation, is much to be regretted. The vitality of the individual is reduced, the children are below normal and there are no opportunities to practice personal hygiene.

Respectfully submitted,

ALEXR. OFFICER,

Tenement Inspector.

REPORT OF CHIEF DAIRY INSPECTOR

A. J. Douglas, Esq., M.D.,
Medical Health Officer.

Dear Sir:—

I have the honor to submit herewith the report of the Dairy Division for the year 1920.

While the general situation in regard to supply has fluctuated and even reached extremes on many occasions during the past ten or twelve years, yet, as indicated by our report for the year 1919, we have undoubtedly safely reached and passed the turning point during the year 1920.

When we look back and remember that for an entire decade we have had to make shift with an inadequate supply which finally culminated in "milkless days," thus depriving many of our children of the opportunity of attaining that state of physical perfection which is so desirable for our future citizens.

While the several Commissions and Investigators appointed from time to time probably did some good by bringing the various facts prominently before the public, and such recommendations as were brought forward, generally included the securing of such legislation as would be of benefit in the conservation of health, yet, boiled down they centred on "Unification of Delivery" and "Municipal Milk."

However, our Municipal Authorities, backed by the opinion of many of our citizens, wisely decided that these schemes could have no beneficial effect on the adequacy of our supply, and that, until the question of an adequate supply of natural milk was permanently solved, nothing of a drastic nature should be attempted.

The year just ended proves a splendid justification of this policy, furnishing the first occasion in a period of over ten years in which we have had a supply more than sufficient to meet all demands for each and every month in the year.

Milk Supply—1920

During the first four or five months of the year, the cost of production was exceedingly high, due to extraordinary conditions in regard to feed and labor. Owing to the light hay crop, and shortage of feed in the two provinces to our West, there was a heavy demand for the entire surplus grown in Manitoba. The prices paid were so attractive that thousands of cars were shipped West and many producers even sold themselves short, and found that they had not sufficient feed to carry them through a somewhat late spring. Those producers who depended on buying locally were caught in even worse plight, as not only had they to compete with high export prices pertaining throughout the entire winter, but for a month in spring, they were almost unable to obtain feed under any conditions.

Fortunately these happenings reached the worst stage at a time when production of milk is usually at a high level so that although the volume was reduced, the surplus was not entirely wiped out.

With the arrival of summer and its abundance of pasture, milk came in freely until August, when on account of a long dry season, the volume again fell off but still not sufficient to create any shortage, until the September rains and fine fall rejuvenated the pastures to such an extent that all danger of a shortage was eliminated.

In case this should leave the impression that "good luck" played the main part in solving the problem of supply, we may state here, that credit should be given the human element, which, taking the lesson of previous years' experience to heart, organized and worked among the producers in the various milk districts, anticipating such special conditions as those mentioned to such a degree of efficiency, that the question of an adequate supply was no longer chimerical or problematical but an established fact.

The Licensed Dairies

Early in the year the Health Committee decided that no license be granted to dairies scoring less than 375 out of a possible 500 on the Score Card. The standard had been set at 350 in 1918 and was kept at that figure for two years during which period about 25 per cent. of the dairies hovered on the border-line so that it was evident that they did not contemplate improving until forced to do so.

All licensed dairymen were notified that the standard had been raised from 350 to 375, and also that in all probability a further raise to 400 would become effective the following year; and in addition, each individual was reminded of his standing in regard to his own particular score, and advised as to the best and most economical methods of improving same. Of course there were a small number who apparently never could understand the necessity of cleanliness and correct methods in handling milk.

Knowing from previous experience what to expect from some of these members, it would have been unwise to attempt giving advice as in all probability they would have interpreted such action as a sign of weakness on our part and an indication that we were desperately anxious to keep them in business.

We are willing to advise and educate whenever possible, but we cannot recognize or admit for one moment that the dairyman who does not know and refuses to learn the first principles of cleanliness, should be allowed to handle domestic milk. There is no room for argument, such undesirables should be eliminated without any question of sympathy or sentiment.

We also have a number of fairly good dairymen who unfortunately own or occupy premises which are sadly out of date and cannot by any means be considered sanitary. These premises were constructed from 15 to 20 years ago, at a minimum expense, and to a minimum standard, as prescribed by the regulations in force at that time. At the present time it is evident that these buildings owe nothing to the owner. In fact where such premises are rented, the amount of revenue received depends to a great extent on the City's license being granted, as without such license, the premises would be practically valueless for rental purposes.

This is an objectionable feature which we do all possible to prevent, but there is no doubt that in a few cases the privileges which are granted with a dairy license have been exploited or abused, the usual method being for the owner who has been running his own dairy, to sell out the herd and business as a going concern, transfer the license and rent the premises to a new man, and in many cases the purchaser is induced to sign up a long lease, so that at the end of the license year, when his case comes up for consideration he is tied down to pay a heavy monthly rental in addition to the installments on the business, and complains, that if he is not allowed to continue, his only alternative would be to go broke, and lose all the capital already sunk in the business.

While we are anxious to retain these dairymen on account of their knowledge of milk production yet it is high time that the premises referred to are declared insanitary and unfit to be licensed.

Licenses Issued

Applications for Milk Vendor's License received during the year numbered 90, which included 2 pasteurizing plants, 3 small milk depots, and 85 raw milk dairies.

All of these applications were eventually passed with the exception of 5 raw milk dairies of which 2 on inspection were found to have no cows, 2 neglected to attain the required standard, although given lots of time and opportunity to do so, and one application was withdrawn at the request of the applicant.

The total number of licenses issued as compared with 1919 is shown as follows:

	1919	1920
Licensed Dairies	99	80
City Cowkeepers	2	0
Large Pasteurizing Plants	2	2
Small Depots	3	3
Total	106	85

It will be noted that we have a falling off in the number of licensed dairies of approximately 20 per cent., and in view of the fact, that we have never had a more adequate supply than that of 1920, it would appear that these dairies do not play the important part in regard to our milk supply that many would have us believe. That this falling off was only slightly due to the higher standard required, is evident when we remember the comparatively small number of applications rejected. Of course the extremely high cost of production during the winter caused several to look upon the business as unprofitable; but the main cause, as pointed out last year, lays in the tendency of the first zone milk producer to drift away for economic reasons. The whole trouble with the first zone milk producer appears to be that he is only able and willing to produce abundance of milk at a time or season when the cost of production is low, and we have lots of milk anyway; but when expenses come high, and the difficulties of production multiply, with a corresponding reduction in profits, then the first zone producer falls down lamentably and leaves the responsibility of supplying the consumer with sufficient milk, in the hands of the outside farmer, and the city distributor.

The majority of the outside farmers are on a more permanent basis, and are in the business to stay, while the majority of the inside dairies are of a more temporary character and practically uninterested in the general welfare of the dairy industry, or the permanent milk supply of this City.

In order that the volume of production should not be curtailed or threatened, or in any way retarded, it may be found necessary in the near future to give some solid encouragement to the farmer-producer, even to the extent of discouraging the temporary local dairy; as it is only by eliminating temporary, in favor of permanent conditions, that we can expect to stabilize our supply.

Unification of Delivery

This question was much discussed a few years ago, and it is interesting to note the manner in which the problem is gradually adjusting itself. Although the population of our City has steadily increased since 1918, yet, the number of waggons employed for delivering milk has decreased; although the milk consumed per capita remains at approximately the same figure, while the total consumption is correspondingly higher. This has been brought about by an increased number of vehicles carrying the maximum load, with a consequently higher average load per vehicle.

	1918	1919	1920
Licensed Dairies	125	115	95
Milk Depots	115	115	125
Total Delivery Vehicles	240	230	220

Thus in 1918 the average load per vehicle was approximately 50 gallons, in 1919, 50 to 55 gallons, and in 1920, 55 to 60 gallons.

Score Cards

All dairies, for which applications had been received, were scored during the months of May and June, although a large number had been previously scored, so that they would know how they stood in view of the higher standard required.

Out of over seventy-five applications received it was only possible to approve of 26 on the first score or inspection, previous to June 1st.

By June 16, 24 additional had passed the standard, making a total of 50 permits issued. The scores of the remainder ran all the way from 320 to 370, and it was not until well into the month of July that sufficient improvements had been effected to enable us to issue 20 more permits, bringing the total to 70. Unfortunately some of the applicants took advantage of the fact that we desired to give all a square deal and every opportunity of acquiring the standard, so that the necessary improvement in many cases was carried out in a reluctant and dilatory manner. However, by the middle of August, 76 permits had been issued and all applications disposed of; additional applications coming in later in the year brought the total to 80 dairies licensed, all inspected and classified by the Score Card.

Score Card classification:

Excellent	480 or more	1
Very Good	440 to 480	3
Good	400 to 440	21
Fair	375 to 400	39
Poor	under 375	16
Total		80

A number of dairies are classified as poor on account of falling a few points short of 375. After spending three solid months on these dairies and raising their standing considerable, it was thought advisable to get them licensed, but hold down their classification. While 16 dairies only reached 370 points, 25 more only reached 375, and never attempted to go any higher, so that it would have been extremely difficult to discriminate.

When it is remembered that in the year previous we had 32 dairies scoring less than 360, and in face of this, the standard was raised to 375, the significance of the above figures can be well understood and satisfaction expressed, that at least 'some improvement has been achieved.

The Milk Shippers

It will be remembered that in the year 1919 we had approximately 500 regular milk shippers, and an additional 400 intermittent shippers, who were taken on in the early Fall or Winter, when the heavy flow of production among the regular shippers had fallen off to such an extent as to make an increased source of supply desirable.

In the majority of cases these new shippers were recruited from those dairy districts where thousands of farmers were keeping cows, but disposing of the product otherwise than as milk. These farmers quickly recognized the value of the new market placed at their disposal, so that a considerable number who had the necessary facilities determined to stay all the year around, with the result that for the summer of 1920, we had over seven hundred regular shippers, being an increase of 200 over the year previous. In the same period there was a reduction in the number of licensed dairymen of approximately 20, so that we may safely conclude that for each local dairyman we lose, at least 10 dairy farmers spring into existence and having better facilities for economic production, tending towards placing milk production on a permanent basis, and the stabilization of supply.

In the month of August the local producer as anticipated, fell down, and from that time on, a steady stream of milk from new shippers was diverted to the Winnipeg Market, so that by the end of the year we had a total of 1,400, or just double the number which served our requirements during the Spring and Summer.

The question might well arise as to how long this system will last, and, if we can continue to switch producers from other lines to milk, whenever required. The extra profits from milk should alone be sufficient to automatically induce the change whenever necessary, and the fact that new settlers now-a-days are in the majority of cases mixed farmers, who keep at least a few cows, as a means of providing a steady livelihood, should ensure that there would be no decrease in the volume of other dairy produce.

The large number of milk shippers who have, during the past two years, been added to our list must, however, not be allowed to drift; a little encouragement goes a long way with these people. There is no necessity to threaten the farmer with such rigid inspection which to many would appear unbearable.

The majority are willing to listen to any reasonable suggestions and appear anxious to continue the production of market milk.

The producer must be made to know that the City Authorities appreciate his efforts on behalf of the milk supply, and that the Inspectors are not sent out to restrict, or place obstacles in the way of legitimate production; but rather to advise, and assist the producer to the end that, by co-operative efforts along these lines, the consumer may have not only an adequate supply of milk, but a supply whose quality and wholesomeness is beyond question.

No amount of inspection, however drastic or rigid in character, will achieve ultimate success without the active co-operation of the producer.

Country Inspection

It was well into the month of August before we got through the several inspections and re-inspections, to which we laid ourselves open by raising the standard for the licensed dairies.

Of course during recent years, owing to the heavy increase in the number of milk shippers, we have been unable to attempt anything approaching a system of general inspection.

With the limited means at our disposal, we have, however, accomplished sufficient along these lines, so as to convince the producer that he was not altogether neglected, while at the same time we gained valuable information which enables us to form a correct opinion of all questions governing supply.

The first zone was covered sufficiently well enough, to give us exact knowledge of every dairyman and dairy farmer within its limits. Every dairy district in the second zone was visited, and possibly two-thirds of the dairy farms inspected, and whenever practicable the possibilities of milk production were explained to those whose premises and equipment made it appear desirable, that such should be engaged in this line.

A few long trips were also taken into the third zone, or winter milk districts, and the information gained there, assured us that there would be no difficulty in having scores of farmers commence shipping milk provided suitable inducements were offered. In fact, several informed us that they were willing to ship milk all the year round, provided they could handle it in such shape that it would reach the City sweet and wholesome. Suitable instructions were issued in each case.

The suggestion has occasionally been offered that the City of Winnipeg should undertake no inspection outside its own limits, and that the expense incurred in this manner should not be borne by the City.

If such a condition existed, it would probably mean that additional and more detailed inspection of all incoming shipments would be necessary, and no saving would thereby be effected. Sanitary methods and conditions under which milk is produced are more effectively controlled at the point of production, and while the Federal and Provincial Authorities do not employ a system of direct inspection, yet through the medium of extension work, and other means of instruction, they do a fair share towards improved conditions on the farm; which indirectly is of benefit to our City. In fact many cities are not so fortunate as Winnipeg in this respect, in that they do not have direct control of their milk supply.

The total cost of this service in travelling expenses, transportation, and maintenance was $1,250.65 and this includes inspection of all licensed dairies from which the City obtains sufficient revenue in the shape of license fees, to more than cover the entire expense incurred. We may also state that not more than one-third of the average work per inspector is performed in the country.

No matter what happens, we are bound to give the maximum attention to the milk as distributed; so that if, for any special reason, we are rushed with work, it is the outside country inspection which has to be curtailed.

In view of the fact that our visits to many of the country shippers only occur at long intervals, generally during the summer months, it is impracticable to follow up any system of improvements to buildings, etc.; therefore we considered it advisable to concentrate our attention to the handling of the milk itself.

Whenever we found suitable facilities for producing and handling milk in a clean manner, along with a good supply of cold water, and suitable arrangements for efficient cooling, we had reason to be satisfied, and no demand was made on the farmer for structural improvements which would cause additional expense.

Our experience has taught us that fine farm buildings are not absolutely necessary, in order that clean, wholesome milk may be produced.

The condition in which milk arrives in the City is what interests us most, such condition reflecting the methods of the producer almost invariably.

Detailed Mileage—Country

	Inspector		
	A.	B.	C.
January	205	80	80
February	200	120	110
March	290	120	90
April	575	100	65
May	590	100	135
June	655	100	80
July	800	430	330
August	300	275	295
September	950	280	250
October	1,200	80	105
November	545	185	80
December	225	170	180
	6,535	2,040	1,800

Milk Consumption

That there are other factors which are liable to cause a decrease in consumption, in addition to the generally accepted cause, i.e. real shortage, may be judged from the trend of events during the past season. Although we had an ample sufficiency of milk, with more or less of a surplus during the whole year, yet, consumption dropped approximately five per cent.; the daily per capita consumption being 0.54 pints, as against 0.56 pints in 1919. We need not go far to find the reason for this condition.

Having struggled through the most strenuous winter of his experience, the producer was getting somewhat disheartened; he had never before been called upon to pay such high prices for feed and labor, and profits had reached the vanishing point. In order to assist the producer in regaining his feet, he was paid a maximum price all through the summer of 1920 and the consumer was charged a maximum price in ratio. The end sought was reached, the producer was encouraged to stay, milk supplies flowed freely, until finally consumption was adversely affected; which goes to prove that the consumer still uses his own judgment, and that high prices cease to be beneficial, when use of the commodity becomes curtailed.

During the first five months of the year, the average daily per capita consumption stood at 0.55 pints, for the next six months it dropped to 0.53 pints, but in December it jumped to 0.56.

The total consumption for the entire year gives an average of 13,000 gallons per day which allows 0.54 pints per capita on a population of 192,000.

Raw Milk From Untested Cows

Raw milk is looked upon by health authorities with suspicion at any time, but when such milk comes from herds of untested cows and is dipped from open vessels, it becomes more than suspicious; and must be considered as a constant menace to the health of the consumer.

In spite of our higher standard, a daily average of 4,000 gallons of this class of milk is being delivered in our City; and this means that 30 per cent. of our daily milk supply may be considered as unsafe, because no amount of inspection such as we are at liberty to exercise, will assure that the herds supplying such milk are free from disease.

During the past 10 years the owners of these herds have been appealed to on several occasions, but all in vain. On payment of a nominal license fee, they have the privilege of operating a business on the streets of the City.

Their distribution expenses are low and their profits must be huge compared with those of the country producer; yet, they continually object to the tuberculin test, they do not wish to know whether their cattle are diseased or healthy and in all probability they do not care. In other words approximately 30 per cent. of our children are exposed to the risk of infection with bovine tuberculosis in order that an item of expense may be saved to a privileged class of milk vendor who is thus able to accumulate profits to which he is not entitled.

No encouragement should be given to dairymen of this class, regulations must be made more strict if necessary, so that raw milk from untested cows will finally be eliminated.

Milk From Tested Cows

At the beginning of the year we had a daily supply of approximately 400 gallons, supplied from three farms, where all the cows are periodically submitted to the tuberculin test, and 300 gallons of this milk was delivered to the consumer in bottles.

Owing to the heavy demand for this class of milk the producers were encouraged to increase their herds to the maximum capacity and finally another first-class dairyman was induced to have his cows tested and go in for "Special" Milk Production, so that by the end of the year the total daily supply had risen to 600 gallons of which 500 gallons were delivered in bottles, while the balance of 100 gallons is delivered in bulk to a large institution.

Under rigid inspection and with the right class of dairyman who understands the necessity of care and absolute cleanliness in production and handling, milk of this description may be considered reasonably safe, in fact it is as safe as it is possible to make raw milk which should not be consumed under any other conditions; and the dairyman who goes to the expense of eliminating all diseased cattle from his herd, and who maintains his premises and equipment in a clean sanitary condition, and exercises such intelligence in the handling of his business, as to leave little or nothing to be desired, is deserving of all possible encouragement. When we remember that on the initial test, approximately thirty per cent. or over of the average herd are found diseased and have to be replaced by cattle which must also take an immediate chance on the test, we can understand the nature of the expense above referred to.

Pasteurized Milk

The consumption of pasteurized milk has increased steadily during the year from 8,000 gallons daily in the month of January to 9,000 gallons daily in the month of December and such increase may be attributed to a combination of circumstances, first being the inability of the raw milk vendor to provide for all those customers formerly depending on him, and in the second case we find a considerable number of consumers developing an inclination towards safe milk; such inclination being reflected in the increased demand for Special Milk from tested cows or pasteurized milk, which are each delivered in bottles. The question of developing a safe milk supply should not however be left to the vagaries of an inclination, as we are bound to always have a number of consumers who pay little or no attention to the milk supply and have no conception of the ills and dangers which are liable to accompany this utility.

We are working today with absolutely no regulations, by-laws or statutes which definitely state that milk handled by dealers must be pasteurized, or that raw milk offered for sale to the consumer must be from tested herds; there being no legal manner in which we can assure that any portion of our milk supply would be considered safe; such testing of cattle, and pasteurizing of milk, as we are fortunate enough to have, being done voluntarily by those firms and individuals concerned;so that with only 65 per cent. of our supply pasteurized and 5 per cent. from tested cows, it is time that some regulation was introduced, which would not only prevent a decrease in this percentage, but would also wipe out the remaining 30 per cent. of unsafe milk.

Classification of Milk Supply, 1920

	Pasteurized	Raw	
January	8,000	5,000	gallons per day
May	8,250	4,750	gallons per day
September	8,500	4,500	gallons per day
December	9,000	4,500	gallons per day

The raw milk consumed may be classified as follows:

	From Untested Herds	From Tested Herds	
January	4,600	400	gallons per day
May	4,300	450	gallons per day
September	4,000	500	gallons per day
December	3,900	600	gallons per day

Milk derived from tested herds was distributed as follows.—

	Certified in btls.	Special in btls.	Bulk
January	1,000	200	400 quarts per day
May	1,100	300	400 quarts per day
September	1,200	400	400 quarts per day
December	1,300	700	400 quarts per day

The above figures reveal a steady increase in the consumption of safe milk, but such increase is altogether too slow, and will eventually come to a standstill, unless stimulated by the introduction of some advanced regulations, which would require all milk other than that produced from tested herds under sanitary conditions, to be pasteurized. In this manner, no holder of a license would be discriminated against, but the privilege of selling raw milk from herds where anywhere from 10 to 30 per cent. of the cows are diseased, would be abolished.

Quality of Milk

Having shown that we have an adequate supply of milk in regard to quantities, and that the proportion of safe milk has steadily increased, the question of improved quality naturally presents itself.

First it may be noted that complaints lodged by consumers have declined during the year, which would indicate that the majority are fairly well satisfied.

Secondly, out of 750 samples of milk examined for butter fat, 24 were found to be below standard, of which number 8 had been adulterated by the addition of water, while of 175 sediment tests in only 2 cases was it found necessary to prosecute.

Again, out of 600,000 cans of milk received during the year, it was only found necessary to condemn the contents of 30 cans, or 5/1000 (five-thousandths) of one per cent.

Bacteriological examinations indicate that, while we are still far from reaching a satisfactory state, yet compared with previous years we had a very large reduction in the number of bacteria contained in the milk supplied; and the results emphasize the necessity of not neglecting this important method of measuring efficiency.

The above conditions may be summed up in a few words, namely, that the average butter fat content of milk during 1920 was slightly higher than the previous year while the bacteria content was lower. The local dairies were producing under a higher standard, while the pasteurizing plants were induced to run along lines several degrees above the margin of safety; all of which would give us the impression that the quality of domestic milk was improved.

Bacteria in Milk

Of recent years, standards based on the number of bacteria in milk have been adopted; such standards of a necessity being arbitrary and based on the assumption that milk properly handled, should never contain above a certain number of bacteria. The difficulty in enforcing these standards generally lies in the fact that no allowance is made as between harmless germs, whose usual habitant is milk, and extraneous organisms which may be harmful.

For instance a cultured buttermilk may be swarming with bacteria, which, if not directly beneficial, are at least harmless; while another milk, fairly free from bacteria of any kind, may, however, contain organisms of a deleterious character.

In the case of pasteurized milk it is chiefly a question of efficiency and it is very difficult to establish a uniform standard, owing to the variable condition in which the raw supply arrives at the plant. Such raw milk may have a count of anywhere from 100,000 to 1,000,000 or more; the consequence being that the pasteurized product may vary in ratio.

The most important thing is to know that milk is pasteurized in a manner which guarantees the destruction of all pathogenic organisms.

We know that if milk is heated to 140°F and held at that temperature for 20 minutes, that no tubercle bacilli will survive, and that pasteurization in this City was formerly conducted slightly above this mark.

In order to obtain uniformity in methods and a larger margin of safety, the City Companies were induced to pasteurize by heating to 145 , and holding for 30 minutes which is well beyond the thermal death-point of all disease germs, and other deleterious organisms, liable to be conveyed by milk.

The holding system of pasteurization was introduced in Winnipeg just ten years ago, and at that time certain experiments were conducted with a view of ascertaining the efficiency of such machinery. The results obtained were not considered very satisfactory and prove that pasteurization of 10 years ago, fell far below the present day standard of efficiency.

Efficiency of Pasteurization, 1911

Raw milk from Country	3,177,500 per c.c.
Heated to 150°F Flash	297,166 " "
Held at 150°F for 30 minutes	118,000 " "
Filled into bottles	163,666 " "
Delivered to Consumer	233,333 " "

Practically the same experiment was conducted in 1920 and the results obtained amply justify the claim that present day pasteurization has developed to a high state of efficiency.

Efficiency of Pasteurization, 1920

Raw milk from Country	1,000,000 per c.c.
Heated to 145°F and held 30 minutes	10,000 " "
Filled into bottles	14,000 " "
Delivered to Consumer	19,500 " "

Of all samples of pasteurized milk, taken under every possible condition, including samples of returns and unsold milk, 30 per cent. contained less than 50,000 per c.c., while 27 per cent. contained between 50,000 and 100,000. The balance going over 100,000.

The raw milk as received at the plants ranged from 115,000 to 1,025,000 bacteria per c.c.

Comparing general results of bacteriological examinations with those of previous years, we find that while we have not generally decreased the minimum count, yet, we have a considerable decrease from the maximum count formerly recorded.

	Samples	Minimum	Maximum
1909	50	30,000	2,500,000
1912	30	20,000	5,525,000
1913	99	5,000	7,000,000
1914	68	8,000	5,000,000
1920	132	10,000	1,025,000

Milk as a Food

The consensus of opinion of experts and authorities are summarised in the following remarks:

Raw milk from untested herds should on no account be fed to babies or young children as by so doing we take a 1 to 4 chance of infecting the child with bovine tuberculosis.

In fact all cases of bovine tuberculosis in children are undoubtedly caused by the consumption of raw milk; but in the case of adults, bovine tuberculosis is practically a negligible factor.

Pasteurized milk for infant feeding has been objected to, on account of the possibility of the vitamines being destroyed in the process, but the addition of a little orange juice will ensure a return to normal, and makes pasteurized milk a correct food for infants.

The following quotation is from the Report of the Committee on Milk Supply, American Public Health Association: "The protection from communicable diseases that pasteurization affords older children and adults, far overshadows any of the easily remedied ill effects associated with infant feeding."

Facts for the Producer

In regard to the producer, the question often arises as to whether he is working on economical lines, and getting the most out of his business at the least expense, and with the minimum outlay. In far too many cases the answer is in the negative, and the producer is giving himself lots of work for very small returns.

The scrub cow, fed on prairie hay and shorts, is still largely in evidence, and she requires just as much work as a real cow, which properly fed and handled, would give twice or three times the amount of returns.

In dairy districts we still see that farmer driving to the local store or station for a load of feed, which is really purchased at a loss because all feeds for milk production can be grown on the farm.

Again fully one-third the value of the purchased feed passes as indigestible matter to the manure pile, where in many cases, the accumulations of several years are in evidence, all of which is practically lost forever.

There is no better or cheaper method in the world for improving poor land, than that which involves the keeping of dairy cattle; and there is no country in the world but where sections of poor land worth little or nothing, have not been brought into a high state of production, through the medium of the humble dairy cow.

Especially does this apply to Western Canada, which, with a climate promoting rapid and luxurious growth can produce fodder crops, such as corn and sunflower, yielding from 10 to 20 tons per acre. By growing such crops, all the manure produced in a season can be lavishly used on a very small acreage, and the character of the crop itself allows ample opportunity for cultivation, so that the land is kept clean, while at the same time, the maximum amount of moisture is conserved.

Again we have clovers and alfalfa, which are splendid milk producers, and which, if grown in sufficient quantity, would eventually entirely supercede the purchased concentrates, while at the same time the land is enriched by the organic matter composing the roots of these crops, which have the useful property of assimilating atmospheric nitrogen, thereby adding to the permanent fertility of the soil.

Not only does the poor class cow cause a direct loss in milk or cream, but there is another loss in connection with her progeny which never develops into anything valuable, neither as milk or beef. The number of "stockers" of this class which arrive at the Stockyards is something appalling and they generally are disposed of as "canners" for a few cents per pound; while alongside we may see large steers going twice the weight and realizing three times the amount per pound; yet each bunch may be of approximately the same age.

If all producers would go in for the right class of cows, and grow their own feed, using up all manure, then the output for Manitoba would be doubled, prosperity would be general, and the Country districts dotted with comfortable homes and barns, with one or two large silos, as the outstanding feature on each farm; and such improvements could well be paid for, out of the increased revenue derived from the dairy herd. Progress along these lines is altogether too slow, and while in some districts, particularly the Winnipeg district, we note a real improvement as regards the class of cow, yet the methods of feeding in the majority of cases have undergone little change from those in vogue ten years ago.

Recommendations

It has been suggested that in formulating any scheme or policy which would lead to a permanent improvement in our milk supply, that alternative recommendations should be given consideration, providing that the same ultimate objective is sought in each case.

First it may be advisable to give a recapitulation of present conditions.

Milk consumption in Winnipeg now stands at 13,500 gallons per day or 0.55 pints per capita while total receipts average over 15,000 gallons per day, and a large number of milk shippers have already been switched off the milk line.

In all my 12 years' experience with the City, the milk supply was never adequate until the year 1919 and never abundant until 1920.

These conditions give us an excellent opportunity for improvement and along lines which would eventually place our milk supply above suspicion.

The 13,500 gallons daily supply may be classified as follows:

Pasteurized	9,000	Safe
Raw from tested cows	600	Reasonably safe
Raw from untested cows	3,900	Unsafe
Total	13,500	

It is with the slightly less than 30 per cent. of raw milk from untested cows that we as Health Officials are chiefly concerned, and if anything could be done to bring this milk into the next class as "reasonably safe," we would be well on the way to placing our milk supply on a par with the best on the continent.

Alternative Policies

1. "Compulsory pasteurization of all milk except that known as 'Certified.' "

This has been adopted by many large cities and is undoubtedly the safest policy that could be advocated. On several occasions pasteurization has been recommended for this City, but the possibility of thereby creating a monopoly or of discriminating against the smaller dairies has mitigated against its adoption, and while the department would welcome the introduction of compulsory pasteurization as a health measure, yet, in view of our special local conditions, it may be advisable to pass over this method for the present.

2. "Raising of the Score Card Standard from 375 to 400 points."

The classification of 80 dairies scored in 1920 was as follows: Maximum 500 points.

480 or more	1
440 to 480	3
400 to 440	21
375 to 400	39
Under 375	16

While the intention of the 1920 Committee was to raise the score to 400, yet it will be noted that 55 out of 80 dairies scored under 400, of which number 41 never made any attempt to improve further than the 375 standard.

This means that fully one-half of the dairies would have to make a gain of 25 to 30 points this year in order to reach

400; and practically the only method by which this could be done would be by means of the tuberculin test, application of which would be voluntary. The difficulty of having one dairyman do something which may not be required of another can be imagined; and no legal enactment could be framed to enforce such a condition.

3. To prohibit the sale of all raw milk other than that produced from herds proved to be healthy by submission to the tuberculin test.

This would not discriminate between individual raw milk vendors, as, under it, all would receive similar treatment; each dairyman would have an equal opportunity of obtaining a license and the cows would be tested at the request of the owner.

Any expense caused by replacement of diseased animals would be in direct proportion to the size of the herd. Thus if an average of 10 per cent. were found diseased, the small man with 10 cows would lose one, while the man with 50 cows would lose 5.

The license fee paid by these dairies is small in comparison with the privileges granted under our present system; and the onus of providing a herd of healthy cows should certainly be on the dairyman.

Saskatoon five years ago enforced the tuberculin test not only on those dairies selling raw milk but on all cows supplying any kind of milk to that City. On the first test from 8 to 10 per cent. of the cows reacted while subsequent tests show from 1½ to 2 per cent. of reactors.

The City of Calgary is at the present time having all cows (something over 6,000) tested; whether the milk is pasteurized or sold raw.

Winnipeg would not require to test more than 2,000 cows and this could be done at a time of year when the surplus milk produced by the healthy animals would offset the loss caused by the removal of the reactors.

It is my opinion that at the present time there are no obstacles in the shape of obligations, or economic questions, in the way of some advanced legislation which would place our milk supply on a higher standard of safety, therefore, I have no hesitation in recommending that, commencing June 1st, 1921, "Dairy licenses be issued to those only whose cows are proved free from tuberculosis by submission to the tuberculin test."

The danger of delay in bringing into effect some improved regulations arises in the fact that we are laying ourselves open to be flooded with cheap raw milk during the

Spring and Summer months when the cost of production is at a minimum. The producers of this surplus milk are not permanent and drop out in the Fall and Winter just when they are needed the most.

Loose regulations breed temporary conditions, while regulations of a more stringent character encourage permanency.

It is a matter of fact that the worst milk shortages experienced by this City were immediately preceded by periods of abnormal surplus, such as we are entering upon at the present time. These are matters which should all have careful consideration in deciding the policy for the future.

I have the honor to be, Sir,

Your obedient servant,

E. C. BROWN,

Chief Dairy Inspector.

DAIRY INSPECTION 1920

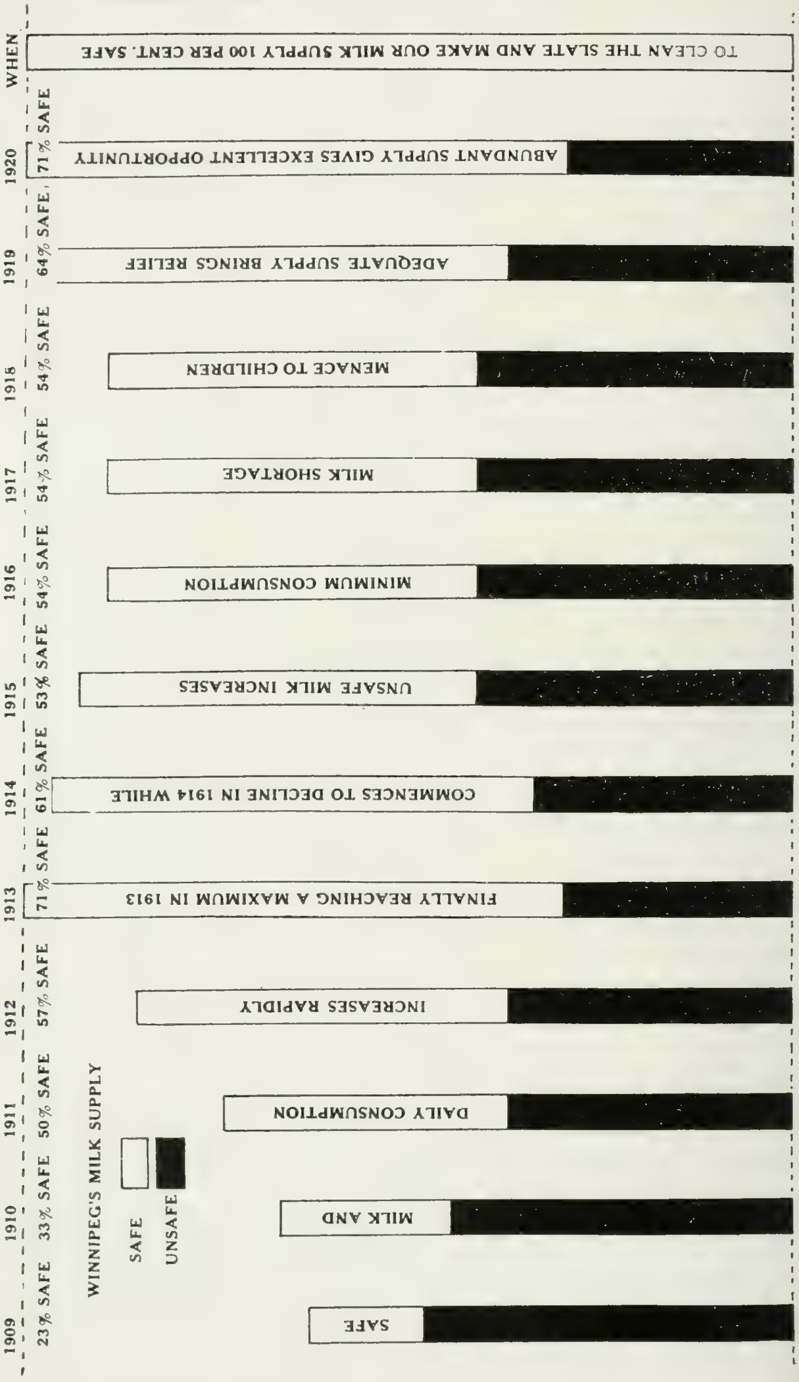
	January	February	March	April	May	June	July	August	September	October	November	December	Totals
Sickness—													
Special Investigations	3	2	2	4	1	8				2			22
Communicable Diseases	1	1	5	3	1	7				2			20
All other cases	1	2				1						1	5
Epidemics........				1									1
Notices—													
General Notices	105			91		50	20	11			74		351
Special Notices	12	4	9	8	12	22	17	19	6	5	7	5	126
Routine Notices	2	3	26	2		6	4	5	1	13	7	1	70
Verbal Instructions	39	86	41	41	31	62	139	86	56	12	21	20	634
Condemnations—													
Milk, pounds.....				150	240	310		240		874	380	180	2374
Cream, pounds						100	171	50	50	2			373
Tuberculin Tests													
Healthy	18		99	29	142	5	12	16	17	9	81	56	484
Reactors			19	1	3			1	1	5	36	7	73
Total Tested	18		118	30	145	5	12	17	18	14	117	63	557

DAIRY INSPECTIONS 1920 (Continued)

	January	February	March	April	May	June	July	August	September	October	November	December	Totals
Prosecutions—													
Summons issued..		4	4	3	5	8	1	1		3	7	6	42
Convictions.......		4	4	3	5	8	1	1		3	7	6	42
Cases dismissed													
Cases withdrawn													
Fines		$25.00	$30.00	$40.00	$86.00	$70.00	$10.00	$5.00		$40.00	140.00	$30.00	$476.00
Costs		9.40	7.05	7.05	4.70	23.35	3.00	3.00		9.00	21.00	18.00	105.55
Total		$34.40	$37.05	$47.05	$90.70	$93.35	$13.00	$ 8.00		$49.00	161.00	$48.00	$581.55
Offences—													
Milk below standard..		1	2	1	3	6	1			1	1		16
Watered Milk			1	1		1				2	3		8
Unclean Milk..........											2		2
Cream below standard			1										1
Unlicensed premises......		3											3
Unlicensed Vendors				1	2			1			1		5
Misuse of bottles												6	6
Improper Vehicle						1							1
Total		4	4	3	5	8	1	1		3	7	6	42

DAIRY INSPECTIONS 1920—(Continued)

	January	February	March	April	May	June	July	August	September	October	November	December	Totals
Inspections—													
Cow Keepers	18	13	14	10	11	10		10	10				96
Licensed Dairies	93	129	93	65	88	123	102	89	92	75	91	83	1123
Farm Shippers	21	36	35	45	38	12	282	228	141	87	23	23	971
Milk Depots	36	46	40	46	36	41	39	35	31	39	46	37	472
Creameries	46	25	39	40	30	26	28	27	37	20	28	33	379
Stores, Restaurants	129	35	42	41	122	28	33	38	8	93	91	83	743
Vehicles	94	102	109	113	107	133	104	112	141	164	135	147	1461
Special	37	45	34	28	19	42	30	24	18	22	34	41	374
Total	474	431	406	388	451	415	618	563	478	500	448	447	5619
Samples—													
Milk for Analysis	24	55	62	77	88	79	54	46	58	74	81	49	747
Cream for Analysis	3	4	1	4	5	6	2			6	7	5	43
Milk for Bact. Counts	24	19	11	15	11	11	11	10	11	16	24	4	167
Sediment Tests	12	10		28	5			10	38	38	16	17	174
Water						2					14		16
Total	63	88	74	124	109	98	67	66	107	134	142	75	1147


WINNIPEG'S MILK SUPPLY
SAFE
UNSAFE
1909
23% SAFE
SAFE
1910
33% SAFE
MILK AND
1911
50% SAFE
DAILY CONSUMPTION
1912
57% SAFE
INCREASES RAPIDLY
1913
71% SAFE
FINALLY REACHING A MAXIMUM IN 1913
1914
61% SAFE
COMMENCES TO DECLINE IN 1914 WHILE
1915
53% SAFE
UNSAFE MILK INCREASES
1916
54% SAFE
MINIMUM CONSUMPTION
1917
54% SAFE
MILK SHORTAGE
1918
54% SAFE
MENACE TO CHILDREN
1919
64% SAFE
ADEQUATE SUPPLY BRINGS RELIEF
1920
71% SAFE
ABUNDANT SUPPLY GIVES EXCELLENT OPPORTUNITY
WHEN
TO CLEAN THE SLATE AND MAKE OUR MILK SUPPLY 100 PER CENT. SAFE

REPORT OF CHIEF FOOD INSPECTOR

A. J. Douglas, Esq., M.D.,
Medical Health Officer.

Sir:—

I have the honor to submit a report of the activities of the Food Division during the year 1920.

The number of places where food is stored, prepared or offered for sale, increased from 1,400 in 1919 to 1,535 this year and the number of inspections to 21,627 as compared with 20,989 last year.

Abattoirs

There are four abattoirs in Winnipeg, all under Dominion Government Inspection.

Due to the nature of raw product, where the by-products are utilized in a modern abattoir, a certain amount of emanation is bound to arise. When these emanations become a nuisance, it is largely due to the faulty equipment provided for eliminating them, neglect of precautions taken to prevent putrification of the raw product, and adjacency of residences. The two first are under the control of the abattoir, adjacency is a matter for those who occupy the residences, especially where the abattoir was located prior to the residences. The district surrounding one of our abattoirs has, since the abattoir was first located on the prairie, grown into a populous district, residences in some cases being within 200 feet of the abattoir. Under these circumstances it was to be expected that conditions, obnoxious to adjacent residents, would arise. The abattoir officials, however, showed themselves willing to do everything possible to alleviate the nuisance. A tower is being erected where the fumes will be condensed by successive streams of cold water, and afterwards further neutralized by passing slowly through a chamber, over a series of heated tar pots. It is hoped that if these several precautions are all given due attention, the nuisance will be abated.

Bottling Plants

Since the advent of Prohibition, quite a number of small bottling plants for aerated waters and fruit drinks have started into business. The equipment of some of these places is somewhat crude and the facilities for sterilizing bottles, occasionally only consist of a stove and large pot for heating the water. In hot weather, which is the time when these places are busy, it is hardly to be expected that the water will be adequately heated. As some of the constituents of these products are liable to be affected by metallic substances, precautions should be taken to guard against such contamination. One complaint was received of sickness being caused by one of the fruit drinks; examination of bottles from the same case of bottles revealed no cause for complaint. It might be that individual bottles had in some way become contaminated, especially in view of the different places and variety of ways in which these bottles are utilized. Bacterial counts were made on several occasions. The count ranged from 8 to 86 Bacteria per c.c. In no case were Bac Coli, or gas forming organisms found.

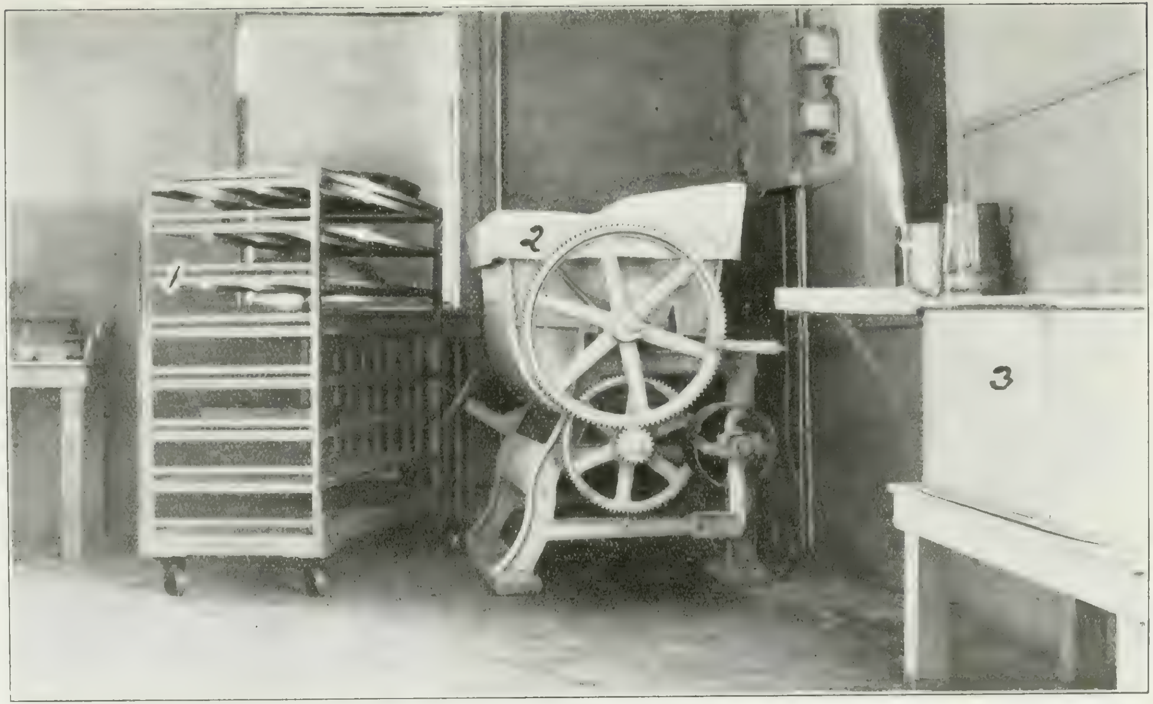
I would respectfully beg to suggest that Regulations be promulgated covering this particular phase of the work.

Bakeries

While the bread bakeries in Winnipeg are equipped and operated in the most modern manner, the same condition hardly obtains in regard to cake bakeries. The sticky nature of the products handled, jams, sugar, syrup, dried fruit, etc., make it especially hard to control, and a certain latitude has been allowed. Two cake bakeries, modernly equipped and operated this year, show that it is possible to operate in a manner above criticism, though it is only just to say that they do not produce the same miscellaneous lines of some of the other bakeries.

Restaurants

While the restaurants compare favorably, both in equipment and methods, with those of other cities, one cannot help feeling that, from the Health point of view, improvement is still to be made. The most important feature from this viewpoint is the danger of infected food material and contact from a diseased individual. The danger from infected food is to a large extent nullified by adequate inspection and the heat to which food is exposed in cooking; the fact that we did not receive a complaint last year, indicated that the danger from this source is slight. The chances of contracting diseases from contact with a diseased person are not quite so reassuring when one realizes the cosmopolitan character of the populace who, by stress of business or pleasure, patronize these places. The most effective way of overcoming this danger is through sterilization of dishes. It is doubtful if the ordinary method of washing dishes in restaurants fills this requirement.



Corner of Modern Cake Bakery

1. Moveable Steel Rack 2. Cover for Mixers when not in use. 3. Large Metal Sink

Surgeon J. G. Cumming of the U. S. Army, reports that among an institutional population of 352,184, the influenza rate for that group eating from machine-washed dishes was 108 per 1,000 inmates, while for the group eating from hand-washed dishes the rate was 324 cases per 1,000 inmates.

I would therefore respectfully ask consideration of the advisability of requiring restaurants above a certain size, to have mechanical washers, not that it is not just as desirable in all places where food is served, but financial consideration obviously precludes the possibility of this measure being applied to all, whereas in places of sufficient size it might not only be more sanitary, but be more economical financially. There are in Winnipeg, 317 licensed victualling Houses with 10,954 seats; these may be divided as follows:

Seats up to 20	172	places
" from 20 to 40	69	"
" " 40 to 60	29	"
" " 61 to 80	93	"
" " 80 to 100	4	"
" " 100 to 150	14	"
" above 150	6	"
Total	317	"

There are 14 restaurants equipped with mechanical dishwashers, the number of seats varying from 57 to 866.

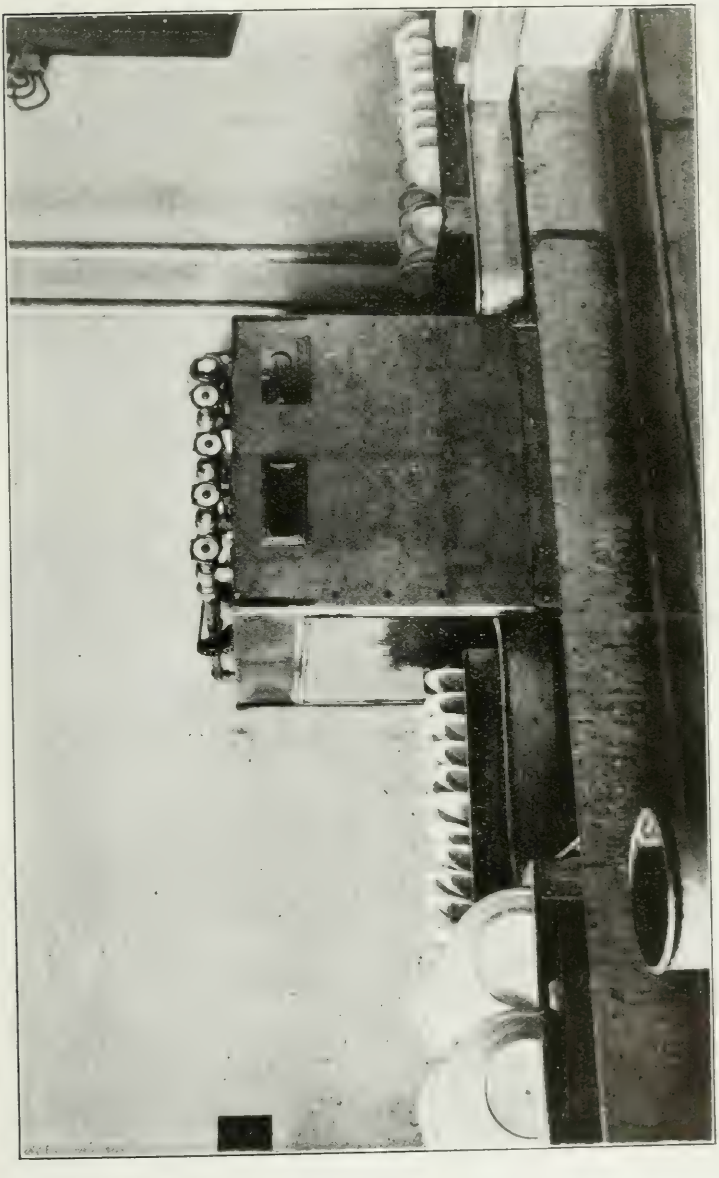
Dogs

Experience would indicate the advisability of having a regulation prohibiting the admission of dogs to food stores. Apart from the unwelcome attention of dogs to containers of food stuffs, the danger of parasitic infection is possible.

Merchants are naturally reluctant to register their objections to possibly good customers, but if there was a regulation covering this matter, they would be in a position to call the attention of the owners of the animals to the same.

Flies

It is gratifying to report that nuisances from flies were much less than usual. Publicity was given early, to the desirability of starting to eliminate flies at the commencement of the season, rather than later in the season when the progeny of a few flies may have increased to thousands and become a nuisance.



Corner of Kitchen—Portage Avenue Restaurant showing Mechanical Dishwasher.

Steps taken to prevent any nuisance, were: Models of large fly traps were constructed and these lent to the larger institutions who soon saw the benefit to be derived. In Butcher Stores the most effective means was a solution of coal-oil and water put in shallow tins, along and adjacent to the windows; some even used these in Fruit Stores and reported that they were effective with no objectionable features. It is apparent that a few precautions early in the season are worth more than extraordinary efforts later.

General Stores

I would beg to call attention to the practice of wrapping food in newspapers, in some of the stores which sell miscellaneous variety of food products and are classed as general stores. While there perhaps is no particular criticism of paper which has not been exposed to contamination, there is always a chance that papers may be taken from houses containing cases of contagious disease.

Licensing Food Places

It would help the work considerably if, in addition to "Victualling Places," which are already licensed, all food places were licensed. While it is true all places are supposed to secure a permit before opening up for business of this nature, it is not unusual to find places operating without a permit. On enquiry as to why they did not apply for a permit, the answer is generally made that on enquiry if they required a license, they were informed such was not necessary. Oftimes in these cases considerable improvements require to be made before a permit can be issued to occupy as a food place. These improvements the tenant usually has to make at his own expense as the landlord knows that the tenant would rather go to this expense than move. Experience also points out that it is much easier to get places renovated where a permit is to be secured each year. Otherwise the inspector has no option but to take Court Proceedings, a most undesirable way of securing improvements.

Among the places licensed under Victualling Houses are a number of Bars and Confectionery Stores where beverages are served in glasses. Naturally these cannot be subjected to the sudden changes of temperature in washing like other dishes. As the tips of the glasses are the portion most liable to contamination, an easy and efficient method of sterilization is provided by inserting the glasses in warm water an inch deep, in a shallow dish. The dish is then placed over a gas jet or electric ring and heated to boiling point. This method or similar simple effective methods should be required for glasses, spoons and forks.

I would also suggest that a system of scoring victualling places be installed. The score card gives a maximum amount for the different equipment and methods required for a perfectly operated Victualling House. When a duplicate sheet is tendered to the proprietor he is able to see at once the requirement of perfection and appreciate the undesirable conditions like cracked dishes, canned goods left in original containers, etc., which may be indicated on the Score Card, invariably spurring him to renewed effort to attain a position as nearly perfect as possible.

Notices posted in Lavatories of Retail Food Establishments, "Please wash hands before handling food," would serve to remind employees of the desirability of the precaution.

Poultry Slaughter Houses

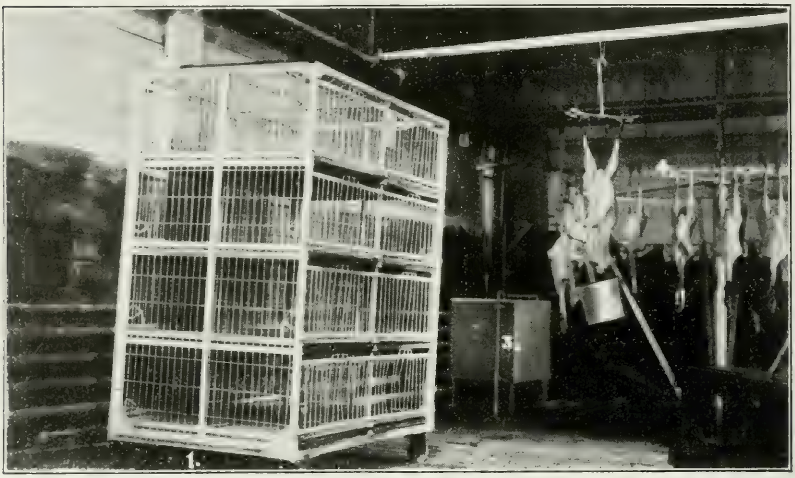
Attention was called last year to the undesirable conditions obtaining in premises where poultry was slaughtered for sale. A new By-law was passed with the object of correcting these conditions. The By-law indicated:—the distance required from other buildings, the height and air space of the rooms, construction of walls and floors, steps to be taken to remove feathers and eliminate vermin, separate accommodation for female help, conditions under which live fowl should be kept and slaughtered, the dressed product cooled and stored.

I am pleased to say that 3 new premises were equipped, one of them with up-to-date moveable steel batteries and capacity for handling 5,000 chickens on feed. The rest all renovated their premises and installed extra air space, more light, lavatory accommodation and better working conditions as required by the Inspector. Typical reports on conditions now, are as follows:

Poultry Slaughter Houses—

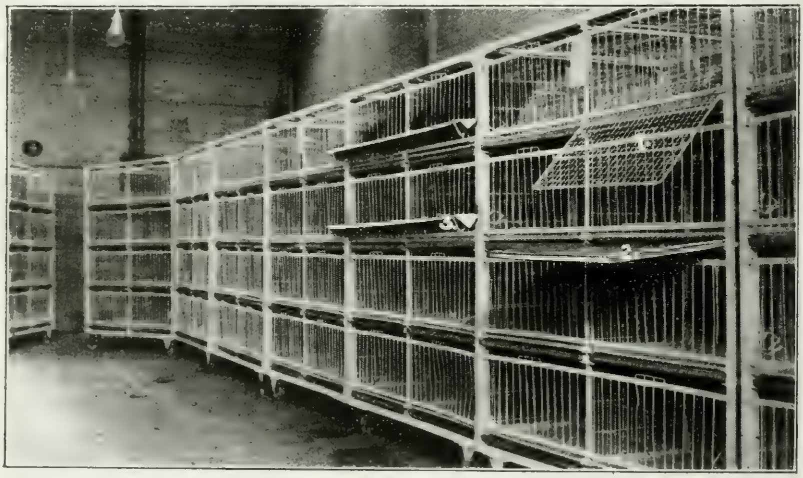
No. 1. New premises with sewer and water, cement floor in killing room and good light and ventilation. Last year the killing was done in a lean-to shed in dilapidated condition.

No. 2. Killing room enlarged giving more air space, window area doubled and windows arranged to open,



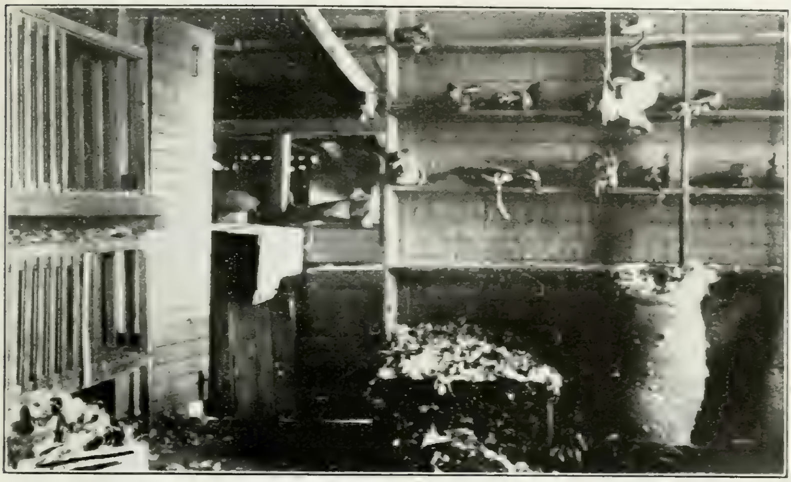
Corner of Modern Poultry Slauhter House.

1. Steel Feeding Battery.
2. Blood Cup Catching Blood.
3. Sink Where Feet are Washed.
4. Steel Revolving Rack Where Birds are Hung to Cool, and Head Wrapped.



Modern Poultry Slaughter House, Showing Feeding Batteries.

1. Racks on Floor.
2. Tray Under Racks, Cleaned Every Day.
3. Feeding Troughs, Cleaned Twice Daily.



Old Style Poultry Slaughter House.
Interior, Showing Pens and Dressed Poultry on Shelves.
Four Women Employed.

new closet and sink installed, new coops for chicken house. In all, 25 improvements were made.

It is gratifying to report that this was done without any friction. One man seemed to think after he had made the improvements that it was not necessary to keep the place clean and a prosecution was required to impress upon him the necessity of keeping sanitary conditions all the time.

This business is becoming more important each year, a total of over 1,000,000 lbs. being handled by 8 firms during 1920.

Prosecutions

The prosecutions this year number 11 and a total of $193.65 was imposed in fines and costs. It is a pleasure to report a decrease in the number of prosecutions, as these are only taken after other means have failed, or intention is disclosed to ignore or evade the law.

Condemnations

The amount of food condemned this year was 175,710 lbs., compared with 437,283, a considerable decrease.

This decrease was most noticeable in the items of vegetables and eggs; vegetables, due to favorable climatic conditions for marketing in the Fall, and eggs, due to favorable climatic conditions and, at the start of the season, the operation of the Saskatchewan Egg Candling Law which required that all eggs must be candled previous to being offered for sale.

Experience indicates that an Act of this nature, to be effective, must govern inter-provincial trade.

A carload of beef weighing 20,000 lbs. was responsible for the abnormal amount of beef condemned; this shipment was composed of the carcases of a carload of cattle which were being driven to the Gold Fields. Climatic conditions prevented their arrival, and conditions under which they were killed and handled, rendered the meat unfit for consumption.

Apart from this large amount, the total of beef condemned shows a considerable decrease as compared with last year, in some measure due to the activities of the Provincial Board of Health in requiring all slaughterhouses to be licensed, and that farmers slaughtering animals for sale, obtain a permit from the Health Officer of their Municipality, somewhat curtailing the amount shipped into the City. This phase of the work will never be satisfactory until all meats, other than those obtained from abattoirs under "Federal Inspection," are required to be brought to a central Clearing House, there to be inspected and stamped, and the importation of sausages, cooked meats, etc., incapable of being inspected, be prohibited unless proof is furnished that these products were made from Federal Inspected Meats.

The amount of veal and mutton condemned was largely due to being shipped without adequate cooling, previous to shipment. After a considerable amount of veal had been condemned in August, a circular was issued pointing out the necessity of thoroughly cooling meat and poultry previous to shipment, which it is hoped will have beneficial results next year.

I am pleased to record that most of the merchants show a disposition to co-operate and call us in whenever they receive food from the country; this relieves them of responsibility in case of dispute on the quality of the goods and insures only goods in best condition being offered for sale.

Last year attention was drawn to the amount of cereals, dried fruit, etc., destroyed by larvae of moths, amounting to 13,031 lbs. A circular was issued pointing out the steps to be taken, especially as regards the necessity for cleanliness and the action of frost in eliminating these pests. Experiments were carried on during the Summer to determine the thermal death point of the egg, larvae and pupal stages. These results were communicated to the trade and it is gratifying to record that this year the amount condemned is only 749 lbs.

The recommendation of last year requiring fruit peddlers to have their names on the vehicles, was carried out and this year we had no complaints of unsound fruit being sold by these persons.

Improvements

The number of improvements was 571, as compared with 415 in 1919, an increase of 37 per cent. This was largely due to the increased demand for business places of this character. During the war a number of places became vacant; in some cases an improvement involving considerable outlay was postponed until after the war. With the return to peaceful pursuits, of a number of men, a demand arose for places suitable for food distribution, and, as such places must receive a permit from the Health Department indicating that they are suitable for that purpose, before occupancy, we were enabled to have improvements made to a number of places which had fallen into a more or less dilapidated condition.

In conclusion I beg to record my appreciation of assistance received from the staff of the Manitoba Agricultural College and Mr. Blackie, City Chemist, and acknowledge the spirit of service exhibited by Inspectors Mines and Foote, without which the increased work could not have been accomplished.

Respectfully submitted,

A. RIGBY,
Chief Food Inspector.

PREMISES UNDER INSPECTION AND IMPROVEMENTS EFFECTED, 1920

PREMISES	Number under Inspection	New Modern	Cement Floors	Renovated	New Plumbing	Re-modelled	Closed
Abattoirs and packing houses	4			4			
Bakeries	36	1	2	13		9	
Biscuit factories	2	1		2		1	
Breweries	4						
Butcher shops	210	6	2	58	2	9	
Butter rooms	7			7			
Candy Factories	32	2		13		6	
Cold storage plants	8						
Commission and produce houses	37	1		3	1	2	
Cone factories	3			3			
Confectionery and ice cream parlors	227	10	5	61	4	18	
Fish stores (wholesale)	9	1	1	1			1
Fruit stores	26			2	1	2	
Grocers (retail)	181	4	2	29	2	6	
Grocers (wholesale)	39	2		1		1	
General stores (food)	321	3	3	55	5	6	
Hawkers Vehicles	97						
Hotel kitchens	36			5		4	
Jam and pickle factories	5			3			
Markets	2						
Peanut butter factories	2						
Poultry slaughter houses	8	1	1	7	4	1	
Restaurants	192	6	6	102	7	30	1
Sausage factories	18	1		8		1	
Soda-water and bottling works	15	2	2	2	1	1	
Tea, coffee and spice houses	7						
Temperance bars	5						
Yeast factories	2	1					
Totals	1535	42	24	379	27	97	2

FOOD CONDEMNATIONS 1920

DESCRIPTION	January	February	March	April	May	June	July	August	September	October	November	December	Totals
Beef	186		6	20,010	285	140					98		20,725
Veal		137		70	54	1,037	933	1,075	176	142		245	3,869
Pork		546	231	389	255		185					25	1,631
Mutton				20			293	153		240			706
Poultry	50		33				15			272	57	311	738
Fish		504	1,000	1,000	100	432							3,036
Fresh fruit	3,300	422		26,600	500		240	3,320				12,750	47,132
Dried fruit		30	114	490	25								659
Jam										205			205
Vegetables		2,800	3,000	26,000	20,700	1,080	11,600		520				67,500
Butter													
Eggs	160	2,720					40	335	11		270		3,536
Candy	1,600	1,430	353	80	50				45			130	3,688
Biscuits				200						5	339		544
Canned Goods	635	100	90	1,728	48	440				18	10,820	70	12,949
Sausage								400					400
Cereals		70			20								90
Nuts			2,199			200	300					20	2,719
Coffee	100												100
Pickles		1,210	120		2,130				420				3,880
Cheese		45			60		298				15	50	468
Baking Soda		60											60
Game				150									150
Sugar					100	200	100	100	100			600	1,200
Syrup					100								100
Tea						100							100
Spice						200							200
Miscellaneous												125	125
Total	6,031	10,074	7,146	76,737	24,427	3,829	14,004	5,383	1,272	882	11,599	14,326	175,710

FOOD INSPECTIONS

PREMISES	January	February	March	April	May	June	July	August	September	October	November	December	Total
Poultry Slaughter Houses									5	4	8	14	31
Butcher Shops	259	198	275	246	226	284	235	226	272	273	284	262	3,040
Restaurants and lunch counters	237	185	239	273	259	257	150	197	229	222	249	247	2,744
Hotel Kitchens	20	6	17	6		2	2	16	21	11	19	13	133
Markets	6	5	5	8	5	8	8	9	9	10	6	8	87
Abattoirs and Packers	5	7	4	7	10	8	9	10	14	20	23	12	129
Hawkers Vehicles	128	126	121	139	189	159	112	138	175	167	124	128	1,706
Grocers (wholesale and retail)	150	104	128	136	145	139	103	168	188	191	197	167	1,816
Commission and produce houses	101	96	124	95	105	104	105	89	95	73	68	61	1,116
Candy factories	42	28	47	40	43	26	25	35	46	47	36	37	452
Fish stores (wholesale and retail	15	9	20	19	16	20	15	13	13	14	16	21	191
Jam, pickle and spice factories	6	11	13	9	16	11	13	17	19	21	20	14	170
Cold storage plants	27	18	21	16	19	25	25	23	21	18	21	14	248
Biscuit Factories		1	4	3	3	4	5	6	3	4	4	5	42
Fruit Stores(wholesale & retail)	58	75	93	114	86	120	124	87	112	115	111	92	1,187
General stores	256	137	305	227	185	240	254	221	312	285	319	335	3,076
Breweries	6	2	3	9	3	21	10	20	26	12	14	9	135
Confectionery and ice cream parlors	161	119	147	190	161	185	152	181	185	160	187	176	2,004
Cone factories			2	1	4	3	3	1					14
Cheese and butter rooms	22	17	24	24	22	23	21	13	17	22	20	20	245
Railway cars	4	8	6	5	2	4	4		5	24	5	4	71
Sausage factories	41	27	40	34	31	39	28	25	24	37	36	32	394
Bakeries	52	48	50	48	38	42	40	41	58	57	43	43	560
Bakers' Vehicles	72	72	109	89	67	78	78	66	79	65	77	66	918
Temperance bars	5	5	6	2	4	2	2	4	8	7	7	6	58
Specials	82	71	102	117	91	93	61	96	105	93	85	64	1,060
Totals	1,755	1,375	1,905	1,857	1,730	1,897	1,584	1,702	2,041	1,952	1,979	1,850	21,627
Notices to improve conditions	126	92	141	173	162	172	117	113	150	126	125	114	1,611

PROSECUTIONS 1920

For insanitary premises				1	1	1		1	1	Nil	1	Nil	6
For unsound food			1				1	...					2
For exposing food to contamination	1						2						3
For no permits													
Amount of fines	$10.00		$25.00	$25.00	$28.00	$8.00	$20.00	$10.00	$28.00		$28.00		$182.00
Amount of costs	2.35		2.35	2.35			2.35 Witness fees	2.35					11.75

BACTERIOLOGIST'S REPORT

A. J. Douglas, Esq., M.D., C.M., B.A.,
Medical Health Officer.

Sir:—

I beg to submit the following report of the work performed in this Laboratory during the year 1920.

The work has followed along exactly the same lines as in previous years, and there has been no new departure in this respect to report on or discuss. I hope that in the near future the scope of this Laboratory will be enlarged, and that it will be called upon to do more varied work.

The following is a somewhat detailed account of the various branches of our work.

Water

During the year 640 samples of water were tested, drawn from the following sources:—

1. City water as obtained in the Laboratory. This test is made daily.
2. City water obtained from Shoal Lake itself, the Reservoir, and various points in the City.
3. City water from the High Pressure System.
4. Water from the Public Swimming Baths.
5. Samples of water for private individuals.

Naturally interest centres around our domestic supply. Our Typhoid Fever returns testify to the purity of our water, though, owing to the nature of its source (a shallow lake), the water conditions vary greatly with the seasons. The summer of 1920 was hot and dry, and our findings were materially different to those of 1919. In the hot weather, a gas forming micro-organism appeared, but in no case could I isolate Bac. Coli of either faecal or non-faecal origin.

Milk and Cream

1,075 samples of these dairy products were analyzed with the following results:—

(1.) 877 samples of milk and 46 of cream were taken officially by the Inspectors of the Dairy Division, of which only 8 of milk and 1 of cream proved to be below standard. 144 bacterial counts were made, which ranged from 15,000 to 1,145,000 Colonies per c.c.

(2.) 90 analyses of milk and 44 of cream were made for the City Bureau of Child Hygiene, and

(3.) 11 analyses of milk and 7 of cream were made for private individuals.

Diphtheria

10,605 throat and nasal swabs were examined for Diphtheria, an increase of about 1,100 over last year. This was mainly due to a "carrier" outbreak in the months of October and November.

Sputa Examinations for Bacilli Tuberculosis

685 specimens, a decrease from last year of 250, were examined. Of these 75 proved to be positive, or a percentage of approximately 10.

Sera Tests for Typhoid Fever

71 of these tests were made, of which 8 were positive. This lessening of what used to be an annual visitation in the early days is most pleasing.

Urethral Pus

459 smears were examined for the Diplococcus of Neisser. This is the only class of examinations for Venereal Diseases that we do, as we do not undertake Wasserman Tests.

Urinalyses and Miscellaneous Tests

861 samples of urine, and 115 other miscellaneous samples were tested. As in former years, the laboratory has endeavored to be of practical use to the medical profession and the public generally, and work other than that connected strictly with Public Health has been undertaken.

Subjoined is a table comparing the work of the past two years:—

	1920	1919
Swabs for Diphtheria	10,605	9,527
Water	640	443
Milk and Cream	1,075	827
Sputa for Bac. Tuberc.	685	920
Sera Tests for Typhoid Fever	71	192
Urinalyses	861	775
Urethral pus	459	334
Miscellaneous	115	63
	14,511	13,061

Yours faithfully,

J. H. LEEMING, M. D.
City Bacteriologist.

REPORT OF DENTAL CLINIC 1920

1920	Appointments	New Patients	Ward Patients	Extractions	General Anaesthetic	Treatments	Prescriptions	X-Ray	Dentures	Prophylaxis	Cement Fillings	Impressions	Bites	Miscellaneous
January	264	53	40	233	6	93	14	12	11	10	8	.	14	22
February	241	56	32	225	11	89	18	12	18	21	8		15	38
March	314	107	59	330	11	117	11	7	13	11	15	27	4	9
April	255	104	64	123	.	110	15	14	2	7	9	26	5	
May	322	102	66	222	15	111	18	8	13	11	2	48	30	...
June *	271	92	56	155	8	113	20	11	10	9	4	27	9	30
July**	131	44	19	72	..	47	5	...	10			15	6	...
August	238	77	42	168	..	58	6	.	28	.		15	16	
September	199	53	40	172		32	2	.	37	.		8	22	..
October	228	38	21	121	1	17	1	14	22	5	3	21	17	55
November	259	46	26	250	19	12	6	9	18	4	6	26	11	48
December	303	48	65	291	18	23	9	8	19	1	...	22	13	53
Totals	3,025	820	530	2,362	89	822	125	95	201	79	55	235	162	255

* June 19th. referred patients to Manitoba Dental Association.

**Dentist off duty from July 10th to 20th.

REPORT OF DIVISION OF COMMUNICABLE DISEASES

A. J. Douglas, Esq., M.D.,
Medical Health Officer.

Dear Sir:—

I have the honor to submit report of the work done by this division during the year 1920.

We have just passed through the busiest year in the history of the department, having to record 9,690 cases of communicable disease reported.

Scarlet Fever, which was prevalent during 1919, continued on the increase during the first four months of the year and coincidently with this we had to engage ourselves with the most extensive outbreak of Measles on record, while the Diphtheria situation , which has caused considerable concern during the past four years, did not improve.

We are pleased, however, to report the Typhoid situation as being without a precedent, the disease which used to cause us grave concern is now a back number.

Smallpox continued to crop up, there being only three months of the year that cases were not reported.

Vaccination of school children in the schools necessitated considerable extra work to this division.

Once again we are pleased to be able to report that the work of the Inspectors of this division has at all times been carried on with an indefatigable devotion to duty and merits commendation for the manner in which they have fulfilled their respective duties.

Inspectors' Visits.

The total number of visits made by inspectors was 13,660, against 10,731 for 1919; this includes calls on quarantined homes or other calls. For part of the year an extra inspector was engaged on this division, making six in all. When one considers the multifarious duties of inspectors of this division, the above total bears out the preceding reference to the work.

Houses Quarantined.

The number of houses quarantined total 6,976 against 3,802 for the preceding year. This increase is largely accounted for by the large number of cases of Scarlet Fever, Diphtheria, and Measles.

Quarantines Raised.

The total shown, viz., 2,009, is only representative of that done by inspectors of this division; many Measles quarantines were attended to by inspectors of the Sanitary Division.

Quarantines Inspected.

Seventeen hundred and eleven inspections were made of quarantined homes, principally Scarlet Fever quarantines, against 1,872 for the preceding year. As we were able to hospitalize almost three-fourths of the cases reported, we were relieved of considerable inspection work.

Other Calls.

Under this heading, all calls made by inspectors for which a place cannot be found on their report, are placed.

Forty-nine houses were fumigated and 4,030 rooms as compared with 46 houses and 2,251 rooms during 1919.

Special reports totalled 510 against 204 for 1919. Such reports have a bearing on some special feature surrounding a case.

Sixty sanitary defects were reported to the Sanitary Division for attention.

Tuberculosis Visiting Nurses

During the year 1920, four nurses have been engaged in the work of visiting tuberculosis patients in the home, superintending the attendance at the Winnipeg General Hospital Clinic and keeping in touch with all work pertaining to tuberculosis.

Six thousand, nine hundred and twenty-one visits were made to homes of patients; of this number 223 were new cases added to this year's list. Each nurse has approximately one hundred homes in her district.

Occasionally it is necessary to make visits on behalf of patients, the total for the year being 335.

Patients sent to the King Edward Memorial Hospital totalled 32, to Ninette Sanatorium 33.

Eight hundred and thirty-seven persons attended the Tuberculosis Clinic held at the Winnipeg General Hospital, against 1,055 for 1919.

Milk was supplied free to 107 patients throughout the year, the amount thus distributed being 16,540 quarts.

Bedding, clothing, the outfitting of patients proceeding to the Sanatorium and the giving of extraordinary relief has been the work of the Anti-Tuberculosis Society.

All cases of ordinary relief and distress were attended to through the Social Welfare Commission.

The co-operation of these bodies and other social agencies are a most important part in the progress of this work, as it is often the duty of the nurse to see that financial difficulties and other forms of distress which are so often associated with this disease, are referred to the proper quarters for alleviation.

In concluding this report I have no hesitation in saying that the work carried on by the nurses and Miss Aldham, whose duties in the general office are of a very multifarious order, are deserving of sincere appreciation.

Respectfully submitted,
W. J. T. WATT,
Chief, Division of Communicable Diseases.

TUBERCULOSIS NURSES' REPORT 1920.

	January	February	March	April	May	June	July	August	September	October	November	December	1920 Totals	1919 Totals
Number of visits	591	411	662	642	587	512	480	549	672	475	666	674	6,921	6,770
To old cases	551	395	622	601	550	448	425	479	625	406	599	603	6,304	6,268
To new cases	25	3	18	17	16	25	23	41	14	20	16	5	223	224
On behalf of patients	14	13	20	21	16	34	30	27	30	23	46	61	335	167
Other calls	1		2	3	5	5	2	2	3	26	5	5	59	66
Patients sent to K.E.H.	3	5	5	3	3			8	1		2	2	32	22
Patients sent to Ninette	10	3	2		3		4	6	1		2	2	33	14
Free Transportation														
T.B. Clinic, old cases	92	45	45	30	25	54	39	46	51	63	37	51	578	848
New cases	29	13	14	19	14	34	23	27	17	35	18	16	259	207

COMMUNICABLE DISEASES INSPECTOR'S REPORT 1920

	January	February	March	April	May	June	July	August	September	October	November	December	1920 Totals	1919 Totals
Number of visits	984	1237	1952	1766	1609	1479	912	616	652	848	904	801	13,660	10,731
Houses quarantined	467	602	1149	1077	1035	729	304	197	238	359	418	401	6,976	3,802
Quarantines raised	101	196	340	302	166	232	214	115	38	86	96	123	2,009	661
Quarantines inspected	126	101	78	48	76	280	195	132	135	170	193	177	1,711	1,872
Other calls	290	338	375	313	303	228	195	167	219	205	165	109	2,907	4,362
New cases investigated	658	754	1354	1159	1206	835	409	232	302	427	464	448	8,248	5,413
Rooms fumigated	317	359	414	424	408	358	290	244	242	319	351	304	4,030	2,251
Houses fumigated	4	5	6	3	8	6	5	2	1	4	3	2	49	46
Special reports	83	78	59	41	49	21	17	27	14	33	37	51	510	204
Sanitary defects reported	5	8	10	2	3	8	4	3	2	3	2	10	60	54

SCHOOL NOTICES—COMMUNICABLE DISEASES, 1920

SCHOOLS	Smallpox	Chickenpox	Measles	Scarlet Fever	Whooping Cough	Mumps	Diphtheria
DISTRICT I.							
Earl Grey	1	2	17	61	2	1	65
Fort Rouge	3	3	13	8	1		5
Gladstone			33	24			7
Kelvin		5	17	28			10
La Verandrye		1	41	15	1		17
Lord Roberts		4	56	29	8		
Riverview			75	34			7
St. Mary's Academy	1	2	26	12			5
River Heights							1
DISTRICT II.							
Alexandra			4	26	1		10
Carlton	1	11	29	35	2		13
Isbister		3	35	42	2		13
St. Mary's	1		10	15			15
Manitoba University				3			3
Success Business College			3	14			3
Havergal College			2	5			1
DISTRICT III.							
Greenway		26	95	49	8		17
General Wolfe		2		5			9
Isaac Brock		4	119	53	7		11
John M. King		5	73	55	1		26
Laura Secord		14	113	51			15
Mulvey		29	73	40	9		9
Principal Sparling		1	66	31	2		8
St. Edward's		3	23	23			4
Wellington		2	63	49	1		13
DISTRICT IV.							
Albert		1	34	59	5	1	14
Argyle		1	24	37	3		11
Maple Leaf		1	12	34		2	11
Kindergarten (Ellen St.)				1			1
Model		1	17	9	1		4
Victoria		1	11	48	3		18
Somerset		2	39	31	4	1	11
Pinkham		32	43	44	9		7
Montcalm				7			8
Cecil Rhodes		7	55	53	1	1	47
Dufferin	2	15	53	42	8	1	40
DISTRICT V.							
King Edward		4	58	65	14	12	35
Champlain							
Aberdeen		20	87	82	22	1	55
Wm. White		11	41	66	5	20	56
Zorquay		5	36	56	11	—	21

SCHOOL NOTICES—COMMUNICABLE DISEASES, 1920—Cont'd.

SCHOOLS	Smallpox	Chickenpox	Measles	Scarlet Fever	Whooping Cough	Mumps	Diphtheria
DISTRICT VI.							
Lord Nelson		12	39	16	8		43
Luston		20	80	68	38		37
Machray	—	4	42	64	6	5	103
Strathcona		4	34	61	8	1	46
St. John's Technical		3	28	56	4		30
Ralph Brown	—	17	52	64	4	1	37
Margaret Scott				8	4	52	8
DISTRICT VII.							
Lork Selkirk		1	48	81	3		26
Anna Gibson				5			4
Elmwood	—	—	19	19	1	—	5
George V.			26	8			4

COMMUNICABLE DISEASES 1920

DISEASES	Jan		Feb		March		April		May		June		July		August		Sept		Oct		Nov		Dec		1920 Totals		1919 Totals	
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths
Typhoid Fever	2	1	1		6	2			2	2	4		3	2	16	2	13		7	2			2		56	11	150	19
Smallpox	6		4		4		6		8		1				2		3				3				37		2	
Chickenpox	92		59		54		21		32		61		22		3		13		9		19		36		421		456	
Measles	20	1	161	3	946	3	965	9	807	11	637	5	164	1	27		3		2				4		3736	33	91	2
Scarlet Fever	340	14	308	16	317	7	345	8	298	9	210	5	140	6	98	1	133	3	153	1	190	3	159	3	2697	76	1148	22
Whooping Cough	68	2	56	2	49		43	4	54	4	27	2	42	1	17	3	47	3	19	3	8		10		440	24	539	19
Mumps	1		5		4						3		1				6		6		32		68		126		33	1
Diphtheria	89	6	79	5	67	3	60	5	71	4	61	4	91	7	96	14	91	5	171	15	159	8	130	8	1165	84	607	46
Diphtheria Carriers	3		6		4		2		10		6		1		5		4		85		61		15		202		102	
Erysipelas	9		7		8		8	3	10	4	5		3	1	3		2		2	1	5	2	5		67	11	52	6
Tuberculosis, Pul	28	12	16	15	27	11	22	15	10	13	22	12	24	14	19	6	12	2	16	14	15	10	6	14	217	138	315	132
A Poliomyelitis		1	1												1		2		33	5	9	5	1	1	47	12	1	1
C S Meningitis			1	1					1	1	1	1					1	1			1	1			5	5	4	4
Epd Influenza	46	2	288	54	70	20	9	6	5	4	2	1					1	1	2	1	2	1	1	1	426	91	2342	301
Puerperal Fever	1	1	3	3	2	2	5	5			1	1									2	2			14	14	9	9
L Encephalitis	11	6	4	3	3	4	1		6	4	3	1	1	2					2	1	1	1	2	1	34	23	70	25
																												1
Totals	716	46	999	102	1561	52	1487	55	1314	56	1050	32	492	34	287	26	331	15	507	43	507	32	439	28	9690	522	6221	588

COMMUNICABLE DISEASE RATES - 1920

(Population 192,571)

DISEASES	1920				1919			
	Cases	Deaths	Rate per 100,000	Rate per 100 Cases	Cases	Deaths	Rate per 100,000	Rate per 100 Cases
Tuberculosis, all forms		178	92.3			177	96.5	
Tuberculosis of the lungs	217	138	71.7	65.0	315	132	71.9	46.1
Epidemic Influenza	426	91	47.2	21.1	2,342	301	164.1	12.8
Diphtheria	1,165	84	43.6	7.20	907	46	25.1	5.1
Scarlet Fever	2,697	76	39.5	2.85	1,148	22	12.0	1.9
Measles	3,736	33	17.1	.085	91	2	1.1	2.2
Whooping Cough	440	24	12.5	5.45	539	19	10.4	3.5
Lethargic Encephalitis	34	23	11.9	67.6	70	25	12.9	35.7
Anterior Poliomyelitis	47	12	6.23	26.6	1	1		
Typhoid Fever	56	11	5.66	19.6	150	19	10.3	12.7
Erysipelas	67	11	5.66	16.3	52	6	3.2	11.5
Puerperal Fever	14	14			9	9		
C. S. Meningitis	5	5			4	4		
Smallpox	37				2			
Chickenpox	421				456			
Mumps	126				33			
Diphtheria Carriers	202				102			

BUREAU OF CHILD HYGIENE

A. J. Douglas, Esq., M.D.,
Medical Health Officer.

Dear Sir:—

I submit herewith the report of the Bureau of Child Hygiene for the year 1920.

The feature of the year's work was the large increase in the number of births, which reached the highest mark recorded for the City and gave a birth rate of 32.06 per thousand population. There were 6,174 live births registered, plus 251 stillbirths, against 5,254 live births and 245 stillbirths for 1919, an increase in live births of 17 per cent. The infantile mortality rate for the year is 101.2 deaths per 1,000 live births, or 3.4 points below the average for the previous five years. The rate for 1919 was 106.9.

By Wards, the mortality rates are as follows:—

	1920	1919	1918
Ward I.	67	104	76
Ward II.	85	112	150
Ward III.	79	81	82
Ward IV.	143	102	101
Ward V.	140	126	102
Ward VI.	110	95	107
Ward VII.	98	131	58

It will be noticed that Ward IV shows a large increase in the death rate over the previous years, apparently due to changes in the Ward population which, according to the Assessor's Survey, has a 10 per cent. increase over 1919, whilst the births show an increase of 24 per cent. Ward V, which is the Ward favored by our foreign-born citizens, on the other hand showed a decrease of 4 per cent. in population and an increase in births of only 2 per cent. The Nurses report that many former residents of Ward V have moved to Wards IV and VI, particularly Ward IV, and that there is considerable overcrowding in consequence.

Ward V, which with Ward IV, shows the highest rates, suffered heavily in the Spring from the Measles epidemic which swept the City, and the long, severe Winter increased the deaths from bronchial and pneumonic diseases.

Ward II (which consists largely of rooming houses) shows a decline in the death rate, but it is to be noted that the stillbirths rose from 55 per 1,000 total births in 1919, to 65 in 1920; the stillbirth rate for the whole City for 1920 is 39 per 1,000 total births.

By nationalities of mothers, the infant mortality rates are as follows:—

	1920	1919	1918
Canadian	89	103	77
English and Welsh	99	101	76
Central and Southern European	142	132	115
Scotch	78	82	64
American (U.S.A.)	53	63	67
Irish	82	103	88
*Scandinavian	98	72	75

(*Denmark, Iceland, Norway and Sweden.)

It will be noticed that the rate for the infants born of mothers from Southern and Central Europe has again increased. From 1912 to 1918 this group showed a steady reduction in infant mortality, and, whilst the increase in 1919 was expected, owing to the influenza epidemic, that of 1920 is a disturbing factor which requires attention. As I have already mentioned, the foreign-born citizens spread from Ward V South to Ward IV and the centre of high mortality also changed to correspond with the new conditions that have developed in that Ward.

Age at Death

Of the 625 infants who died under one year, 306 were aged less than one month, or 49 per cent. Of these 306, 210 were aged one week or less, equivalent to 33.6 per cent. of the total infantile deaths. This early mortality varies in different districts, being low in the foreign-born districts and high in the English-speaking districts. The reduction of these deaths is our greatest problem, and with this end in view, addresses to mothers are constantly given by the nurses, literature distributed, free laboratory service provided, hospitalization arranged for, etc., so that, together with the various pre-natal and V. D. Clinics it is hoped to reduce the numbers of these early deaths, but other factors, over which the department and other organizations have no control, are largely responsible and education of mothers and better economic conditions are the most needed to bring about a sweeping reduction.

As has been shown in previous reports, the former large reductions in the infantile mortality rates resulted from fewer deaths from diarrhoel disease of infants aged from one to twelve weeks. The following figures illustrate this point: In 1912, the year prior to the inauguration of the Bureau of Child Hygiene, and the year of our highest infantile mortality rate, 38 infants aged a week or less, died per 1,000 born; in 1920, 34 died. In 1912, 125 infants aged 12 weeks or less died, per 1,000 born, against 66 in 1920. Diarrhoel diseases are, of course, the most easily overcome.

Babies' Clinic

Dr. C. C. Field was appointed in January as attending physician in succession to the late Dr. E. Richardson, and has attended the Clinic on alternate mornings with Dr. R. F. Rorke.

During the year 781 new patients attended the clinic, whilst the total examinations numbered 6,129, as compared with 518 new patients and 4,512 examinations during 1919. The above figures show the high pressure to which the clinic was subjected during the year, and the accommodation was hard pressed in the Summer when as many as 45 babies were examined in a morning.

The 781 new patients were classified by Wards, as follows:—

Ward I	II	III	IV	V	VI	VII	Non-Resident
48	32	96	139	161	165	58	82

I would draw your attention to the fact that 82, or over 10 per cent. of these patients came from outside points. They visited the clinic probably 500 times and many received feedings from the dispensary, payment for which in some cases could not be collected. It does not appear right that these people, who contribute nothing to the City's support, but who expect to receive the benefits paid for by our citizens, should receive these services free, and I would recommend that an adequate charge be made for the various services, as we lack accommodation at the Depot and it is manifestly wrong for the City to have to provide larger quarters because of the attendance of non-resident patients.

Milk Depot Dispensary

The new refrigerating plant was installed in April at a cost of $3,155.00, including the insulating of a storage room, 12 ft. x 6 ft. It consists of a 3 ton ammonia compressor operated by a 5 H.P. electric motor, with the necessary fittings, and is mainly used for cooling the city water supply with which the feedings are cooled after pasteurization. It has given entire satisfaction and greatly facilitated the work of the staff.

The feedings prepared totalled 50,310, as compared with 40,392 during 1919, each feeding averaging seven bottles each. Paid feedings numbered 40,772, for which $5,290.10 was collected, against 33,627 paid feedings prepared and $3,603.34 collected, in 1919. In addition, $1,697.28 was paid by the Children's Hospital for feedings supplied during 1920, making a total cash collection of $6,987.38. The rates for feedings range from 10 to 25 cents a day and the average amount collected per feeding was 13.0 cents against 10.7 cents in 1919. Free feedings are supplied whenever necessary, but the idea that the Bureau of Child Hygiene is a charitable organization is strongly discouraged.

Child Welfare Nurses

Two additional nurses were added to the staff in June, making fourteen nurses in all.

Misses M. Barr and A. H. McPherson resigned to get married and Miss J. Stelfox resigned to take up nursing for a private firm. These ladies have rendered excellent service and their resignations were much regretted from a departmental standpoint. Misses M. Cuffe, E. A. Bennett, M. Harper, F. K. Whittick and M. W. Macrae were the nurses appointed to the three vacancies and two new positions, and they have readily adapted themselves to the work.

The nurses visited 3,819 infants out of the 5,188 live births to resident mothers. Wards I to III, where five nurses were on duty after May, showed 53 per cent. of the births visited, Wards IV to VII with eight nurses visiting after May, showed 91 per cent. of the births visited. In these latter Wards, all live births are visited, but some infants are dead before the nurse pays her visit and others cannot be located owing to having been moved, etc.

There was a considerable amount of sickness in these latter wards and the nurses were kept at high pressure throughout the year.

I wish to express my appreciation of the work of the nursing and dispensary staffs through the heaviest year which the Bureau has yet had to face. Their time has unstintingly been given to further the interests of the babies' welfare and in view of the exceptional severity of the Winter, and the high birth rate, it is satisfactory to report a decrease in the rate of 3.4 below the average for the past five years.

Respectfully submitted,

A. G. LAWRENCE,

Manager, Bureau of Child Hygiene.

BABIES' MILK DEPOT REPORT FOR YEAR 1920

1920	No. OF CASES AND FEEDINGS											
								MILK DEPOT				
	Total attendance at Clinic	Cases attending for first time	Cases on Dispensary list on 1st of Month including Children's Hospital	New cases discovered for first time	Total cases added during month	Total cases discontinued	Children's Hospital feedings	Paid feedings	Free feedings	Patriotic feedings	Total feedings	Grand Total feedings
January	319	44	112	50	51	38	675	2,665	587	366	3,732	4,107
February	344	46	152	42	47	55	719	2,495	884	416	3,795	4,514
March	419	54	157	55	47	47	934	2,820	846	438	4,104	5,038
April	494	79	168	54	62	55	1,066	3,012	822	386	4,220	5,286
May	438	78	141	54	71	67	887	3,299	722	415	3,299	5,319
June	542	72	132	47	73	59	911	3,112	524	367	4,003	4,914
July	562	68	132	53	62	67	798	3,305	296	335	3,936	4,734
August	604	82	138	71	91	76	950	3,811	355	237	4,403	5,353
September	691	86	153	74	95	96	915	4,237	130	150	4,517	5,762
October	628	73	145	58	95	73	762	4,392	270	66	4,728	5,510
November	588	51	153	49	51	69	772	4,071	114	6	4,902	4,881
December	500	48	158	38	46	52	950	3,523	306		3,829	4,878
Totals	6,129	781	1,741	645	791	754	10,339	40,772	5,856	3,182	59,310	60,596

BABIES' MILK DEPOT REPORT FOR YEAR 1920 (Continued)

1920	CASH COLLECTED		FEEDINGS				SUPPLIES USED								
	Cash collected at Dispensary Stations	Cash collected at Children's Health Centers	[illegible]	Free Acct.	[illegible]	[illegible]	Whole Milk (Qts.)	Skim Milk	Cream	Powdered Sugar	[illegible]	Barley Flour	Special Oatmeal	Dextri Maltose
January	$408.05	$106.15	3 930	448	4	25	1 956	986	65½	87¾	50	62	15½	43
February	385.45	112.65	4 262	269	31	12	1 130	1,033	62½	81	63	64	29	51
March	437.45	143.30	4 807	202	19	10	2 206	1 206	70	87¾	64	68	30	64
April	434.65	164.95	4 958	216	82	30	2 496	1 260	75½	94½	64	60½	30	63
May	361.00	136.55	5 026	123	14	156	2 434	1 178	88	121	54	57	33½	62
June	502.20	138.30	4 490	288	12	124	2 212	1 192	86½	114¾	60	60	37½	40
July	482.75	122.05	4 324	286	88	36	2 362	1 372	64½	88½	58½	63	31	37½
August	336.60	147.75	4 878	279	70	126	2 486	1 244	68	102	65	72½	21	45
September	300.05	150.35	5 270	283	50	59	2 560	1 418	81½	100	59	75	15	39
October	518.00	113.58	5 079	381	48	2	2 456	1 520	63¾	94½	61	62	15½	45
November	443.05	146.85	4 470	388	8	15	2 408	1 102	59¾	74½	56	55½	15	35
December	580.95	184.80	4 467	389	20	2	2 574	1 064	46½	67½	56	53	31	40
Total	$5,190.10	$1,667.28	55 961	3 552	446	597	27 380	14 575	832	1,113¾	710½	752½	304	564½

BUREAU OF CHILD HYGIENE REPORT FOR 1920

1920	Number of days on duty	Number of visits to babies	Number of visits to Children's Homes	Deaths of infants visited more than once	Visits to babies for first time	Feeding at time of first visit.			Number of calls to sick babies	Telephone calls for nurse	Cases referred to physicians	Cases referred to Milk Depot	Cases referred to Social Welfare Commission	Cases referred to M S N M	Cases referred to Fresh Air Camp	Clothing supplied	Ice supplied
						Natural	Artificial	Mixed									
January	271	2,784	2	3	354	291	57	4	434	137	43	52	4	6		4	
February	232	2,897	2	8	320	256	59	4	490	129	46	43	8	4	153	9	
March	291	3,961	6	14	379	282	33	26	370	134	42	33	1	3		3	
April	254	3,295	4	12	342	282	40	21	491	135	46	59	4	6		2	
May	249	3,884	7	23	350	302	48	8	579	129	42	68	4	4		6	
June	248	4,057	10	4	326	292	33	20	575	143	14	41	2	5	7	1	6
July	239	2,805	6	9	293	243	30	20	314	124	18	41		3			
August	232	3,114	15	12	342	310	32	30	400	125	14	51					30
September ..	290	4,262	3	10	363	324	43	8	377	130	27	76	3	7		4	4
October	313	4,276	11	16	347	289	85	12	346	152	31	66	2	2			
November	325	4,132	10	22	295	274	21	15	411	148	28	38	3	3			
December	289	3,830	14	18	261	223	28	7	489	212	50	41	4	7			
Totals	3,233	43,297	86	151	3,962	3,368	509	175	5,276	1,698	401	609	35	50	160	29	40

STATISTICIAN'S REPORT

A. J. Douglas, Esq., M.D.,
Medical Health Officer.

Dear Sir:—

I have the honor to submit herewith, the Vital Statistics for the year 1920.

A. G. LAWRENCE,
Statistician.

Summary of Statistics

	1920	1919
Area of City—Land, 14,865 acres; water, 422 acres; total, 15,287 acres (23.9 square miles)		
Population, City Assessor's figures	192,571	183,378
Persons per acre of land	12.95	12.33
Natural increase, excess of births over deaths	3,904	3,146
Rate per 1,000 population	20.28	17.15
Stillbirths	251	206
Rate per 100 total births	39.06	37.7
Births, excluding stillbirths	6,174	5,254
Rate per 1,000 population	32.06	28.65
Deaths, excluding stillbirths	2,270	2,108
Rate per 1,000 population	11.79	11.49
Infantile mortality, deaths of infants under 1 year	625	562
Rate per 1,000 living births	101.2	106.9
Marriages	3,001	2,922
Rate per 1,000 population	15.64	15.93

GROSS TYPHOID FEVER DEATH RATES PER 100,000 POPULATION

1900	1901	1902	1903	1904	1905	1906	1907	1908	1909	1910	1911	1912	1913	1914	1915	1916	1917	1918	1919	1920
117.5	118.4	95.0	84.6	248.3	222.6	146.5	51.6	49.6	38.4	31.6	17.1	10.8	9.7	7.9	3.5	9.5	8.2	7.6	10.3	5.7
				Corrected Rate for City							7.9	5.4	4.3	3.9	2.0	7.5	6.0	6.5	7.4	.0

CRUDE DEATH RATES PER 100,000 POPULATION

Year	Population	Tuberculosis of lungs (28)	Tuberculosis other forms (29-35)	Cancer all forms (39-45)	Simple meningitis (61)	Cerebral haemorrhage (64)	Organic heart diseases (78-79)	Diseases of the arteries, atheroma, aneurysm, etc. (81)	Acute and chronic bronchitis (89-90)	Pneumonia all forms (91-92)	Appendicitis and typhlitis (108)	Hernia, intestinal obstruction (109)	Acute and chronic nephritis (119-120)	Puerperal deaths (134-140)	External causes (155-186)
1920	192,571	71.7	20.8	79.4	13.0	45.7	62.3	11.9	13.5	132.9	14.0	9.9	25.3	28.0	47.3
1919	183,378	72.0	24.5	73.1	10.9	30.5	64.9	9.8	18.0	105.2	17.4	13.6	33.3	15.3	57.2
1918	183,595	86.6	26.7	80.6	7.6	32.1	71.3	9.3	10.9	117.6	19.1	10.9	38.7	19.1	49.0
1917	182,848	74.4	24.1	62.4	14.2	24.6	65.6	19.7	13.7	114.8	14.2	4.9	31.2	19.7	41.0
1916	200,090	79.5	24.4	63.5	20.5	25.0	66.5	17.5	21.0	129.4	12.5	9.0	29.0	20.5	41.5
1915	201,981	79.2	16.8	48.5	17.3	20.8	54.9	15.3	21.8	91.1	13.4	11.4	28.2	12.9	52.9
1914	203,255	72.8	19.7	44.3	12.8	19.2	48.7	10.3	22.1	93.0	6.4	6.4	28.0	26.1	60.5
1913	184,730	71.4	26.0	51.4	21.6	21.6	64.4	11.9	13.0	109.9	10.3	8.7	35.7	21.1	68.2
1912	166,553	64.8	29.4	49.2	22.8	30.6	72.1	4.8	21.0	168.1	8.4	6.6	39.0	21.0	74.5
1911	151,958	71.0	27.7	46.7	18.4	19.1	55.9	4.6	13.8	138.2	9.2	9.9	36.8	13.8	62.5

ACUTE COMMUNICABLE DISEASES

Cases and Deaths; Mortality per 100 Cases; Case and Death Rates per 100,000 Population

Year	Population	MEASLES					SCARLET FEVER					DIPHTHERIA				
		Cases	Deaths	Mortality per 100 cases	Case Rate	Death Rate	Cases	Deaths	Mortality per 100 cases	Case Rate	Death Rate	Cases	Deaths	Mortality per 100 cases	Case Rate	Death Rate
1920	192,571	3,736	33	.9	1940.1	17.1	2,697	76	2.8	1400.5	39.5	1,165	84	7.2	605.0	43.6
1919	183,378	91	2	2.2	49.6	1.1	1,148	22	1.9	626.0	12.0	907	46	5.1	494.6	25.1
1918	183,595	1,685	9	.5	917.7	4.9	227	10	4.4	123.6	5.4	1,077	48	4.4	586.6	26.1
1917	182,848	1,115	19	1.7	609.8	10.4	254	5	2.0	138.9	2.7	1,467	68	4.6	802.3	37.2
1916	200,090	3,051	37	1.2	1524.8	18.5	386	17	4.4	192.9	8.5	1,281	50	3.9	640.2	25.0
1915	201,981	2,164	25	1.2	1071.4	12.4	267	2	.7	132.2	1.0	463	44	9.5	229.2	21.8
1914	203,255	2,360	22	.9	1161.1	10.8	600	35	5.8	295.2	17.2	532	52	9.8	261.7	25.6
1913	184,730	361	15	4.1	195.4	8.1	1,288	45	3.5	697.2	24.4	281	34	12.1	152.1	18.4
1912	166,553	2,210	33	1.5	1326.9	19.8	572	59	10.3	343.3	35.4	347	41	11.8	208.3	24.6
1911	151,958	1,051	14	1.3	691.6	9.2	1,030	124	12.0	677.8	81.6	583	79	13.5	383.7	52.0
1910	132,720	1,059	14	1.3	797.9	10.5	907	93	10.3	683.4	70.1	270	23	8.5	203.4	17.3
1909	122,390	719	8	1.1	587.5	6.5	233	8	3.4	190.4	6.5	118	13	11.0	96.4	10.6

Year	Population	WHOOPING COUGH					MEASLES, SCARLET FEVER DIPHTHERIA AND WHOOPING COUGH					TYPHOID FEVER				
		Cases	Deaths	Mortality per 100 cases	Case Rate	Death Rate	Cases	Deaths	Mortality per 100 cases	Case Rate	Death Rate	Cases	Deaths	Mortality per 100 cases	Case Rate	Death Rate
1920	192,571	400	24	5.4	228.5	12.5	8,038	217	2.7	4174.2	112.7	56	31	19.6	29.6	5.7
1919	183,378	539	19	3.5	293.9	10.4	2,685	89	3.31	1464.2	48.5	150	19	12.7	76.3	10.3
1918	183,595	582	16	2.7	317.0	8.7	3,571	83	2.32	1945.0	45.2	140	14	10.0	76.2	7.6
1917	182,848	329	19	5.8	180.0	10.4	3,165	111	3.51	1730.9	60.7	136	15	11.0	74.4	8.2
1916	200,090	602	27	4.5	300.8	13.5	5,320	131	2.46	2658.8	65.5	123	19	15.4	61.5	9.5
1915	201,981	115	13	11.3	56.9	6.4	3,009	84	2.79	1489.7	41.6	115	7	6.1	56.9	3.5
1914	203,255	109	22	20.2	53.6	10.8	3,601	131	3.64	1771.6	64.4	137	16	11.7	67.4	7.9
1913	184,730	57	19	33.3	30.9	10.3	1,987	113	5.69	1075.7	61.2	232	18	7.7	125.6	9.7
1912	166,553	70	23	32.8	42.0	13.8	3,1[illegible]	156	4.88	1920.7	93.6	339	18	5.3	203.5	10.8
1911	151,958	50	8	16.0	32.9	5.3	2,714	225	8.29	1786.0	148.1	194	26	13.4	127.7	17.1
1910	132,720	28	13	46.4	21.1	9.8	2,264	143	6.31	1,705.8	107.7	355	42	11.8	267.5	31.6
1909	122,390	48	14	29.2	39.2	11.4	1,118	43	3.85	913.5	35.1	326	47	14.4	266.4	38.4

Stillbirths

	Males	Females	1920 Totals	1919 Totals
January	15	6	21	18
February	15	8	23	9
March	15	11	26	11
April	11	6	17	28
May	10	3	13	17
June	8	5	13	20
July	15	9	24	24
August	12	14	26	11
September	17	10	27	16
October	14	11	25	25
November	11	7	18	13
December	9	9	18	14
Totals	152	99	251	206

	1920	1919	1918	1917	1916	1915
Rate per 1,000 total births	39.1	37.7	41.8	34.1	40.7	37.2
Ratio of males to 100 females	153	125	145	116	105	156

Stillbirths According to the Nationality of Mother

Rates per 1,000 total births.

	1920	1919	1918	1917	1916	1915
Central and Southern European	31	35	38	40	41	41
Canadian	43	33	37	26	41	37
British	42	39	49	30	39	33

Illegitimacy

Year	Illegitimate births	Per cent of total births
1920	262	4.1
1919	270	4.9
1918	306	5.2
1917	267	4.7
1916	290	4.6
1915	333	5.5
1914	349	5.8
1913	379	6.5
1912	383	7.6
1911	268	5.8
1910	285	7.3
1909	228	5.8

Births
(Excluding Stillbirths)

Month	Males	Females	1920 Total	1919 Total
January	268	281	549	438
February	288	236	524	369
March	370	332	702	415
April	250	255	505	488
May	255	268	523	380
June	254	235	489	370
July	313	264	577	449
August	255	235	490	406
September	232	242	474	437
October	231	247	478	530
November	237	220	457	446
December	224	182	406	526
Totals	3,177	2,997	6,174	5,254

	1920	1919	1918	1917	1916	1915
Ratio of males to 100 females	106	106	107	108	106	108
Twin births	88	77	70	64	68	72
Triple births	----	----	----	1	1	----

Attendant at Birth (including Stillbirths)

	1920		1919	
Physicians	5,716	89.0%	4,548	83.3%
Midwives and no attendant	699	11.0%	899	16.7%
Unknown	10		13	

Comparative Table

Year	Population	No. of births	Rate per 1000
1920	192,571	6,174	32.06
1919	183,378	5,254	28.65
1918	183,595	5,621	30.61
1917	182,848	5,446	29.79
1916	200,090	5,980	29.88
1915	201,981	5,823	28.82
1914	203,255	5,789	28.48
1913	184,730	5,577	30.2
1912	166,553	5,041	30.2
1911	151,958	4,614	30.4
1910	132,720	3,890	29.3
1909	122,390	3,898	31.8
1908	118,252	3,738	31.6

Nativity of Mothers of Infants Born, 1920
(Including Stillbirths)

Canada	1,820	Iceland	52
England and Wales	1,600	Italy	48
Ireland	240	Norway	23
Scotland	747	Roumania	41
Australia	3	Russia and Poland	652
India	7	Spain	1
British West Indies	6	Sweden	57
Egypt	1	Switzerland	4
Malta	4	Turkey	6
New Zealand	2	China	4
South Africa	5	Japan	3
Austria-Hungary	705	United States	307
Belgium	17	South America	1
Denmark	5	Unknown	6
France	25		
Germany	16	Total	6,425
Holland	17		

Summary

	Births		Births	
	1920	1919	1920	1919
Canada	1,820	1,600	28.33	29.30
British Isles	2,587	1,825	40.26	33.43
Scandinavia	137	131	2.13	2.40
Southern and Central Europe	1,536	1,604	23.91	29.38
United States	307	264	4.78	4.83
Other Countries	32	19	.50	.35
Unknown	6	17	.09	.31
Totals	6,425	5,460	100.00	100.00

Deaths
(Excluding Stillbirths)

Month	Males	Females	1920 Totals	1919 Totals
January	102	81	183	273
February	148	131	279	170
March	116	92	208	254
April	100	125	225	208
May	134	120	254	161
June	69	80	149	124
July	93	66	159	128
August	77	77	154	161
September	78	56	134	125
October	112	78	190	144
November	89	84	173	152
December	95	67	162	208
Total	1,213	1,057	2,270	2,108

	1920	1919	1918	1917	1916	1915
Ratio of males to 100 females	115	113	117	107	124	128

Comparative Table

Year	Population	No. of deaths	Rate per 1000
1920	192,571	2,270	11.79
1919	183,378	2,108	11.49
1918	183,595	2,706	14.74
1917	182,848	1,728	9.45
1916	200,090	2,072	10.35
1915	201,981	1,763	8.73
1914	203,255	1,955	9.62
1913	184,730	2,204	11.9
1912	166,553	2,236	13.4
1911	151,958	1,951	12.8
1910	132,720	1,803	13.6
1909	122,390	1,454	11.9
1908	118,252	1,434	12.1

DEATHS. BY MONTH, SEX AND AGE PERIOD, 1920

Month		Under 1		1 to 2		3 to 4		5 to 9		10 to 19		20 to 29		30 to 39		40 to 49		50 to 59		60 to 69		70 to 79		80 to 89		90 to 99		Totals	
		M	F	M.	F	M	F	M	F	M	F	M	F	M.	F.	M	F.	M.	F	M	F.	M	F	M	F	M	F	M	F
January		24	22	5	3	4	5	8	3	5	3	7	9	7	13	13	8	7	6	13	4	8	3	1	2			102	81
February		37	23	13	7	5	3	5	7	6	8	20	17	16	26	14	14	8	7	13	6	8	6	2	7	1		148	131
March		33	21	8	7	2	3	4	3	3	7	10	9	13	12	10	9	13	8	9	5	6	7	3	1	2		116	92
April		32	30	12	8	5	3	1	2	2	6	5	17	13	21	13	4	5	6	8	13	2	9	2	5		1	100	125
May		43	31	10	6	4	4	5	6	7	8	4	12	9	12	10	3	11	6	18	11	9	14	4	6		1	134	120
June		18	23	5	6	2	2	5	2	4	3	4	8	5	15	8	8	8	5	4	5	2	2	4	1			69	80
July		33	15	4	5	2	2	5	4	3	5	6	7	9	6	7	7	9	6	9	5	5	4	1				93	66
August		27	27	7	5	3	5	5	3	4	2		5	5	9	6	5	9	6	5	5	6	2		2		1	77	77
September		28	20	3	5		1		3	2	2	8	3	7	4	9	6	4	1	5	6	7	1	5	4			78	56
October		24	18	8	3	3		6	8	6	6	8	2	6	9	12	9	14	3	8	5	11	7	4	8	2		112	78
November		26	24	5	3	4	3	6	6	1	6	5	7	6	11	10	7	7	2	13	9	4	4	2	2			89	84
December		33	13	5	2	2	3	5	5	3	5	4	3	11	7	8	2	8	8	7	9	7	5	1	4	1	1	95	67
Totals		357	267	85	60	36	34	55	52	47	61	81	99	107	145	120	82	103	64	112	83	75	64	29	42	6	4	1213	1057
Combined																													
Totals	1920	624		145		70		107		108		180		252		202		167		195		139		71		10		2,270	
Totals	1919	562		142		54		92		110		225		281		166		155		154		117		47		3		2,108	
Percentages of																													
Totals	1920	27.49		6.39		3.08		4.71		4.76		7.93		11.10		8.90		7.36		8.59		6.12		3.13		.44		100.00	
Totals	1919	26.66		6.74		2.56		4.36		5.22		10.67		13.33		7.88		7.35		7.31		5.55		2.23		.14		100.00	

Nativity of Decedents, 1920

Winnipeg	847	Belgium	1
Manitoba (rest of)	132	Denmark	1
Alberta	5	Finland	1
British Columbia	3	France	1
Cape Breton Island	2	Germany	7
New Brunswick	10	Greece	1
Newfoundland	2	Holland	4
Nova Scotia	19	Iceland	27
Ontario	219	Italy	12
Prince Edward Island	11	Norway	5
Quebec	32	Roumania	4
Saskatchewan	23	Russia	121
Canada	109	Spain	1
England and Wales	262	Sweden	19
Ireland	70	Syria	1
Scotland	129	China	2
Australia	1	America	1
British Guiana	1	United States	61
India	2	Unknown	14
South Africa	2		
British West Indies	2	Total	2,270
Austria	103		

Summary

	Deaths		Per cent. of tota	
	1920	1910	1920	1910
Canada	1,414	1,260	62.29	59.77
British Isles	461	422	20.31	20.02
Europe (exclud. British Isles)	308	324	13.57	15.37
United States	61	66	2.69	3.13
Asia	5	8	.22	.38
Other Countries	7	6	.31	.29
Unknown	14	22	.61	1.04
Totals	2,270	2,108	100.00	100.00

Social Status of Decedents

	Male	Female	Total	Per cent of total
Single, under 16 years	565	448	1,013	44.63
Single, 16 years and over	173	86	259	11.41
Total: Single	738	534	1,272	56.04
Married	384	382	766	33.74
Widowed	83	142	225	9.91
Divorced	2	....	2	.09
Unknown	5	....	5	.22
Totals	1,212	1,058	2,270	100.00

Stillbirths and Deaths in Hospitals, 1920

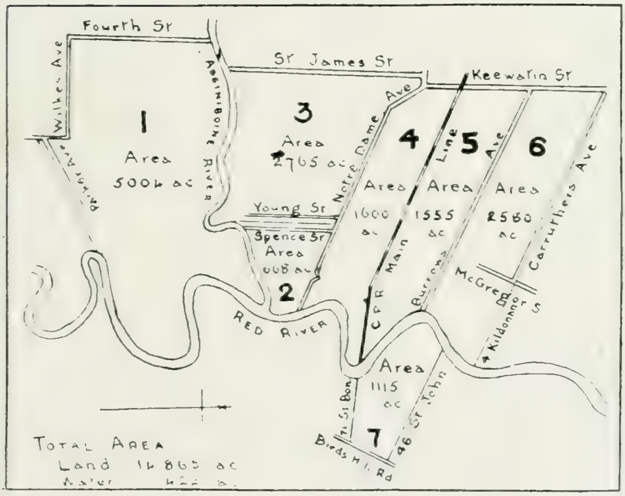
	Deaths	Stillbirths	
General Hospital	545	54	Surgical and Medical
Children's Hospital	143	....	As above in children
King George Hospital	121	....	Communicable diseases
King George Annex	12	....	Communicable diseases
King Edward Memorial	69	....	Advanced tuberculosis
Grace Hospital	56	37	Maternity
Misericordia Hospital	68	27	Maternity
North Wpg. Hospital	4	....	Surgical and Medical
Victoria Hospital	59	11	Surgical and Medical
Mineral Springs Sanitorium	3	....	Private Hospital
Elmwood Sanitorium	1	....	Private Hospital
Dr. Gerzabek's Hospital	4	....	Private Hospital
	1,085	129	

Deaths by Wards, 1920

Ward	1920 Population	1919 Population	Per cent of Increase	Deaths	1920 Rate per 1,000	1919 Rate per 1,000
1	27,780	25,942	7%	236	8.49	9.79
2	20,646	18,131	14%	171	8.28	8.93
3	46,161	43,705	5%	431	9.34	9.40
4	26,684	24,372	10%	361	13.53	12.02
5	32,917	34,301	*4%	325	9.87	8.42
6	26,811	25,373	6%	256	9.55	10.56
7	11,572	11,554	.1%	111	9.59	9.18
City	192,571	183,378	5%	1,891	9.82	9.72
Outside				379		
Totals				2,270	11.79	11.49

(*Decrease)

Map of Ward Boundaries



Infant Mortality Statistics

For further particulars regarding infantile mortality, see report of the Manager, Bureau of Child Hygiene, pages 146 to 152.

Comparative Infant Mortality Table

Year	No. births	No. deaths	Rate per 1,000 births
1920	6,174	625	101.2
1919	5,254	562	106.9
1918	5,621	516	91.8
1917	5,446	545	100.1
1916	5,980	700	117.0
1915	5,823	619	106.3
1914	5,789	729	125.9
1913	5,577	947	169.8
1912	5,041	1,006	199.5
1911	4,614	762	165.1
1910	3,890	628	161.4
1909	3,898	513	131.6
1908	3,738	535	143.1

Infant Mortality According to Nationality of Mothers
(Excluding Stillbirths)

Nationality	1920 Live births	Deaths	Rates per 1,000 live births 1920	1919	1918	1917
Canadian	1,741	155	89	103	77	86
English and Welsh	1,527	152	99	101	76	101
Irish	232	19	82	103	88	65
Scotch	719	56	78	82	64	72
American (U.S.A.)	299	16	53	63	67	92
Scandinavian	133	13	98	72	75	58
Southern and Central European	1,488	211	142	132	115	130

Infantile Mortality—Cause of Death
Number of Deaths

Diseases	1920	1919	1918
Acute infectious diseases	45	41	73
Other general diseases	22	34	24
Of nervous system and of organs of special sense	29	23	15
Of respiratory system	115	109	72
Of digestive system	144	132	118
Malformations and diseases of early infancy	246	201	197
All other diseases	24	22	17
Totals	625	562	516

Rates per 1,000 Births

Diseases	1920	1919	1918
Acute infectious diseases	7.3	7.8	13.0
Other general diseases	3.6	6.5	4.3
Of nervous system and of organs of special sense	4.7	4.4	2.7
Of respiratory system	18.6	20.7	12.8
Of digestive system	23.3	25.1	21.0
Malformations and diseases of early infancy	39.8	38.2	35.0
All other diseases	3.9	4.2	3.0
Totals	101.2	106.9	91.8

Per Cent. of Total

Diseases	1920	1919	1918
Acute infectious diseases	7.2	7.3	14.1
Other general diseases	3.5	6.0	4.6
Of nervous system and of organs of special sense	4.7	4.1	2.9
Of respiratory system	18.4	19.4	14.0
Of digestive system	23.0	23.5	22.9
Malformations and diseases of early infancy	39.4	35.8	38.2
All other diseases	3.8	3.9	3.3
Totals	100.0	100.0	100.0

Classification of Ages of Decedents Under One Year of Age

	No. of deaths	Rate per 1,000 births	1920 Per cent of total
Minutes to one week	210	34.0	33.6
Over 1 to 2 weeks	43	7.0	6.9
Over 2 to 3 weeks	34	5.5	5.5
Over 3 weeks to 1 month	19	3.1	3.0
Minutes to 1 month	306	49.6	49.0
Over 1 to 2 months	50	8.0	8.0
Over 2 to 3 months	51	8.3	8.1
Minutes to 3 months	407	65.9	65.1
Over 3 to 6 months	96	15.6	15.4
Over 6 to 9 months	58	9.4	9.3
Over 9 and under 12 months	64	10.3	10.2
	625	101.2	100.0

For comparison with the above, the final figures for the years 1919 and 1918 are given below:

1919

	No. of deaths	Rate per 1,000 births	Per cent of total
Minutes to 3 months	343	65.3	61.0
Over 3 to 6 months	122	23.2	21.7
Over 6 to 9 months	52	9.9	9.2
Over 9 and under 12 months	45	8.5	8.1
Totals	562	106.9	100.0

1918

Minutes to 3 months	324	57.6	62.8
Over 3 to 6 months	77	13.7	14.9
Over 6 to 9 months	63	11.2	12.2
Over 9 and under 12 months	52	9.3	10.1
Totals	516	91.8	100.0

	1920 CAUSE OF DEATH (By Month)	January	February	March	April	May	June	July	August	September	October	November	December	Totals
	Stillbirths	21	23	26	17	13	13	24	26	27	24	18	19	251
	1—General Diseases													
1	Typhoid fever	1		2		2		2	2		2			11
6	Measles	1	3	3	9	11	5	1						33
7	Scarlet fever	14	16	7	8	9	5	6	1	3	1	3	3	76
8	Whooping cough	2	2		4	4	2	1	3	3	3			24
9	Diphtheria and croup	6	5	3	5	4	4	7	14	5	15	8	8	84
10	Influenza	2	54	20	6	4	1			1	1	1	1	91
	Totals, Nos 1 to 10	26	80	35	32	34	17	17	20	12	22	12	12	319
14	Dysentery	1	1					1		1				4
18	Erysipelas				3	4		1			1	2		11
19	Other epidemic diseases								1					1
20	Purulent infection and septichæmia				2		1	1		1		1	2	8
28	Tuberculosis of the lungs	12	15	11	15	13	12	14	6	2	14	10	14	138
29	Acute military tuberculosis		1			3			1	1				6
30	Tuberculous meningitis	1	1	2	2	1	3	2	2	2			1	17
31	Abdominal tuberculosis		3		2	1		1		1		1	1	10
32	Pott's disease						1					1		2
33	White swellings		1					1						2
34	Tuberculosis of other organs	1				1	1							3
35	Disseminated tuberculosis													
	Totals, Nos. 29 to 35	2	6	2	4	6	5	4	3	4		2	2	40
36	Rickets					1				1				2
37	Syphilis		1		2	1			1	1	1	2		11
39	Cancer and other malignant tumors of the buccal cavity			1			1					1		3
40	Cancer and other malignant tumors of the stomach, liver	7	4	4	4	7	4	9	2	6	8	6	7	68
41	Cancer and other m. t. of the peritoneum, intestines, rectum	2	3	2	4	1	1	2	1	3	1	3	1	24
42	Cancer and other m. t. of the female genital organs	3		2	2	4	3	2					1	17
43	Cancer and other malignant tumors of the breast		1				2		2			1		6
44	Cancer and other malignant tumors of the skin				1									1
45	Cancer and other malignant tumors of other organs	2	3	3	4	4	1	1		1	9	2	4	34
	Totals, Nos. 39 to 45a	14	11	12	15	16	12	14	5	10	18	13	13	153

1920 CAUSE OF DEATH (By Month)	January	February	March	April	May	June	July	August	September	October	November	December	Totals
46 Other tumors (tumors of the female genital organs excluded)						1							1
47 Acute articular rheumatism	3		3	1	1		1	1	2	2	1	1	16
48 Chronic rheumatism and gout								1					1
50 Diabetes	1		1	1	2	1		1		1			8
51 Exophthalmic goitre	1	1			1	1	2			1			7
52 Addison's disease					1		1						2
53 Leuchæmia		1			1						1	1	4
54 Anæmia, chlorosis	2	4	1	3	2		3	2	1	1	1		20
55 Other general diseases		1					1						2
56 Alcoholism (acute or chronic)	2			4							1	1	8
59 Other chronic poisonings	1												1
Totals, "Other General Diseases"	11	9	5	16	14	4	11	7	7	7	9	7	107
II.—Diseases of the Nervous System and of the Organs of Special Sense													
60 Encephalitis			1	1	1		1	1	1			2	8
60a Encephalitis lethargica	6	3	4		4	1	2			1	1	1	23
61 Simple meningitis		3	2	1	2	3	3	4	3	1	3		25
62 Locomotor ataxy			1										1
63 Other diseases of the spinal cord						3	1	1	1	1	1		8
63a Acute anterior poliomyelitis	1									5	5	1	12
64 Cerebral hæmorrhage, apoplexy	6	5	5	10	13	7	3	9	3	13	8	6	88
65 Softening of the brain	1									1			2
66 Paralysis without specified cause	1	1			2	1	2	2		2	1	1	13
67 General paralysis of the insane		1		1		1							3
68 Other forms of mental alienation						2	1		2				5
69 Epilepsy					1								1
71 Convulsions of infants			1	1		1		2		1	1	2	9
72 Chorea					1								1
73 Neuralgia and neuritis		1											1
74 Other diseases of the nervous system	1	1				1		1		1	1		6
76 Diseases of the ears		1	1	1									3
Totals	16	16	15	15	24	20	13	20	10	26	21	13	209
III.—Diseases of the Circulatory System													
77 Pericarditis					1								1
78 Acute endocarditis	4		6	8	1	1	2	2		4	3	1	32

1920 CAUSE OF DEATH (By Month)	January	February	March	April	May	June	July	August	September	October	November	December	Totals
79 Organic diseases of the heart	4	2	14	7	8	6	3	11	6	10	3	14	88
80 Angina pectoris				2	2		1			2	3	1	11
81 Diseases of the arteries, atheroma, aneurysm, etc.	1	5	3	1	3				5	2	2	1	23
82 Embolism and thrombosis		2	1	2	4	3	1	2		5	1	2	23
83 Diseases of the veins (varices, hæmorrhoids, phlebitis, etc.						1		1					2
84 Diseases of the lymphatic system (lymphangitis, etc.)	1	1	1		1				1	1			6
85 Hæmorrhage; other diseases of the circulatory system		1						1			2	1	5
Totals, excluding Nos. 78 and 79	2	9	5	5	11	4	2	4	6	10	8	5	71
IV.—Diseases of the Respiratory System													
86 Diseases of the nasal fossæ										1			1
87 Diseases of the larynx				1									1
88 Diseases of the thyroid body			1	1									2
89 Acute bronchitis	2	3	3	2	3	1			2	1	1		18
90 Chronic bronchitis	1	2		1	1	1	1				1		8
91 Broncho-pneumonia	11	25	15	15	24	14	7	7	4	7	7	15	151
92 Pneumonia	9	25	12	12	12	2	8	5	6	3	8	3	105
93 Pleurisy	1	1			1				1			2	6
94 Pulmonary congestion, pulmonary apoplexy		2	1	1	1				2	2	2	1	12
95 Gangrene of the lung												1	1
96 Asthma			1	1	1				1		1	1	6
97 Pulmonary emphysema						1							1
98 Other diseases of the respiratory system (tuberculosis excl.)	1						1				1		3
Totals, excluding Nos. 91 and 92	5	8	6	7	7	3	2		6	4	6	5	59
V.—Diseases of the Digestive System													
100 Diseases of the pharynx	2						2						4
101 Diseases of the œsophagus	1												1
102 Ulcer of the stomach											1		1

1920 CAUSE OF DEATH (By Month)	January	February	March	April	May	June	July	August	September	October	November	December	Totals
103 Other diseases of the stomach (cancer ex.) (2 yrs. and over)			1		1	1						1	4
103a Other diseases of the stomach (cancer ex.) (under two years)	2		2	4	1	1	2	1		1	5	2	21
104 Diarrhœa and enteritis (under 2 years)	2	5	8	8	12	4	9	18	19	18	7	14	124
105 Diarrhœa and enteritis (2 years and over)......				3				3	2				8
108 Appendicitis and typhlitis.....................	1	4	4	2	2	1	2		3	3	2	3	27
109 Hernia, intestinal obstruction	1	1	2		5		3	2	2		1	2	19
110 Other diseases of the intestines			1	1			1	1	1			1	6
111 Acute yellow atrophy of the liver				1									1
112 Hydatid tumor of the liver								1					1
113 Cirrhosis of the liver....								1			2		3
114 Biliary calculi	1		1	1	1	1		1				1	7
115 Other diseases of the liver			2		1		1		1	1			6
116 Diseases of the spleen											1	1	2
117 Simple peritonitis (non-puerperal).........	2	1									2	2	7
118 Other diseases of the digestive system (cancer & tuber. ex.)	1												1
Totals, excluding Nos. 103a and 104	9	6	11	8	10	3	9	9	9	4	9	11	98
VI.—Non-Venereal Diseases of the Genito-Urinary System and Annexa													
119 Acute nephritis		1	2	2	1		1	2	1		3	1	14
120 Bright's disease	6	6	9	4	4	1	3	3	3	8	2	5	54
122 Other diseases of the kidneys and annexa		1	1					1		2			5
123 Calculi of the urinary passages										1			1
124 Diseases of the bladder				1									1
126 Diseases of the prostate			1	1		1				2	1		6
129 Uterine tumor (non-cancerous)	2		1								3		6
130 Other diseases of the uterus				1	1		1	1			1		5
131 Cysts and other tumors of the ovary	1									1			2

1920 CAUSE OF DEATH (By Month)	January	February	March	April	May	June	July	August	September	October	November	December	Totals
132 Salpingitis and other diseases of the female gential organs	1	1			1	1				1	2		7
Totals, excluding Nos. 119 and 120	4	2	3	3	2	2	1	2		7	7		33
VII.—The Puerperal State													
134 Accidents of pregnancy			2	1	2					1	1	1	8
135 Puerperal hæmorrhage	2		1	1					1		2		7
136 Other accidents of labor	2						1	1	2	1	1	1	9
137 Puerperal septichæmia	1	3	2	5	1	5					2		19
138 Puerperal albuminuria and convulsions		1			1	2	1		1	1		1	8
139 Puerperal phlegmasia alba dolens, embolus, sudden death				1	1			1					3
Totals	5	4	5	8	5	7	2	2	4	3	6	3	54
VIII.—Diseases of the Skin and of the Cellular Tissue													
142 Gangrene	3	2						1	1				7
144 Acute abscess	1	2				1	1	1		1		1	8
145 Other diseases of the skin and annexa				2		1							3
Totals	4	4		2		2	1	2	1	1		1	18
IX.—Diseases of the Bones and of the Organs of Locomotion													
146 Diseases of the bones (tuber. excepted)		1	1	2	4	1			1	1	1		12
147 Diseases of the joints (tuber. and rheumatism excepted)		1				1							2
Totals		2	1	2	4	2			1	1	1		14
X.—Malformations													
150 Congenital malformations (stillbirths not included)	4	4	1	2	5	5	2	2	1	1	3		30
XI.—Early Infancy													
151 Congenital debility, icterus and sclerema	19	17	13	13	19	9	16	12	8	8	17	9	160
152 Other causes peculiar to early infancy	7	8	5	5	5	2	7	3	1	4	5	5	57
Totals	26	25	18	18	24	11	23	15	9	12	22	14	217

1920 CAUSE OF DEATH (By Month)	January	February	March	April	May	June	July	August	September	October	November	December	Totals
XII.—Old Age													
154 Senility	1	2	2		3	1			4	3	....	3	19
XIII.—External Causes													
155 Suicide by poison		1	1								2		4
157 Suicide by hanging or strangulation		2		1	1								4
158 Suicide by drowning						2							2
159 Suicide by firearms						1	1			1			3
160 Suicide by cutting or piercing instruments				1	1			1					3
165 Other acute poisonings	1	1		2	1	1	2						8
166 Conflagration							1						1
167 Burns (conflagration excepted)		2	3	4		1	1	1	1	1			14
168 Absorption of deleterious gases (conflagration excepted)							1						1
169 Accidental drowning					1		1	1	2		1		6
170 Traumatism by firearms			1						3				4
172 Traumatism by fall		2	1	1	1		1	1		3	1	1	12
174 Traumatism by machines		1								1			2
175a Traumatism by automobiles	1				5	4	1	2			1		14
175b Traumatism by railroads					1	1						2	4
175c Traumatism by other crushing (landslides, etc.)		1						2					3
178 Excessive cold		1											1
181 Electricity (lightning excepted)				1					1				2
186 Other external violence			1		1				1				3
Totals	2	11	7	10	12	10	9	8	8	6	5	3	91
XIV.—Ill-defined Diseases													
189 Cause of death not specified or ill-defined	2	1	1	3	1				1		1	1	11
Totals	2	1	1	3	1				1		1	1	11
Grand Totals	183	279	208	225	254	149	159	154	134	190	173	162	227

1920 CAUSE OF DEATH (By Sex and Age)	SEX		AGE IN YEARS													
	Male	Female	Under 1	1 to 2	3 to 4	5 to 9	10 to 19	20 to 29	30 to 39	40 to 49	50 to 59	60 to 69	70 to 79	80 to 89	90 to 99	Totals
Stillbirths	151	100														251
I.—General Diseases																
1 Typhoid fever	5	6					1	4	3	2	1					11
6 Measles	16	17	16	13	4											33
7 Scarlet fever	35	41	4	15	12	19	15	3	6	2						76
8 Whooping cough	14	10	18	5	1											24
9 Diphtheria and croup	56	28	5	15	16	34	11	2	1							84
10 Influenza	39	52	2	4	4	3	7	24	26	9	4	6	1	1		91
Totals, Nos. 1 to 10	165	154	45	52	37	56	34	33	36	13	5	6	1	1		319
14 Dysentery	2	2	1	1		1								1		4
18 Erysipelas	7	4	2						2	1	2	1	2	1		11
19 Other epidemic diseases	1		1													1
20 Purulent infection and septichæmia	4	4	5	1					1	1						8
28 Tuberculosis of the lungs	78	60	1	1		1	13	44	38	22	11	7				138
29 Acute miliary tuberculosis	4	2	1	1		1	1	1			1					6
30 Tuberculosis meningitis	7	10	1	4	2	5	1	3	1							17
31 Abdominal tuberculosis	8	2		1	1			1	2	3	2					10
32 Pott's disease	1	1						1		1						2
33 White Swellings	2						1	1								2
34 Tuberculosis	2	1	1					1	1							3
Totals, Nos. 29 to 34	24	16	3	6	3	6	3	8	4	4	3					40
36 Rickets	1	1		2												2

1 9 2 0

CAUSE OF DEATH

(By Sex and AGE)

	SEX		AGE IN YEARS													
	Male	Female	Under 1	1 to 2	3 to 4	5 to 9	10 to 19	20 to 29	30 to 39	40 to 49	50 to 59	60 to 69	70 to 79	80 to 89	90 to 99	Totals
37 Syphilis	7	4	8				1		1	1						11
39 Cancer and other malignant tumors of the buccal cavity	1	2								1	1	1				3
40 Cancer and other malignant tumors of the stomach, liver	42	26						2	4	14	15	23	9	1		68
41 Cancer and other m.t. of the peritoneum, intestines, rectum	10	14						2	2	4	6	7	2		1	24
42 Cancer and other m. t. of the female genital organs		17					1	1	4	2	6	3				17
43 Cancer and other malignant tumors of the breast	1	5								2	1	2			1	6
44 Cancer and other malignant tumors of the skin	1												1			1
45 Cancer and other malignant tumors of other organs	21	13		1			1	2	3	5	3	12	4	3		34
Totals, Nos. 39 to 45	76	77		1			2	7	13	28	32	48	16	4	2	153
46 Other tumors (tumors of the female genital organs exc.)	1									1						1
47 Acute articular rheumatism	6	10			1	3	4		3	2	1	1		1		16
48 Chronic rheumatism and gout		1											1			1
50 Diabetes	4	4					1		1			3	1	2		8
51 Exophthalmic goitre	1	6						1	4	2						7
52 Addison's disease	2							1	1							2
53 Leuchæmia	3	1						1	1		1	1				4
54 Anæmia, chlorosis	13	7	1						3	4	5	5	2			20
55 Other general diseases	2										1	1				2
56 Alcoholism (acute or chronic)	7	1							5	2	1					8
59 Other chronic poisonings		1						1								1
Totals, "Other General Diseases"	61	46	18	4	1	4	6	4	21	15	12	11	6	5		107
II. —Diseases of the Nervous System and of the Organs of Special Sense																
60 Encephalitis	3	5	3	1				2	1	1						8

60a	Encephalitis lethargic	18	5	1		1	1	6	2	4	4	1	1	2			23
61	Simple meningitis	9	16	10	3		2	2	2	3	3						25
62	Locomotor ataxy	1									1						1
63	Other diseases of the spinal cord	5	3						1		2	4	1				8
63a	Acute anterior poliomyelitis	5	7		5	3	3	1									12
64	Cerebral hæmorrhage, apoplexy	46	42	5					2	4	2	12	27	26	9	1	88
65	Softening of the brain	2										1				1	2
66	Paralysis without specified cause	6	7	1					1			1	3	4	3		13
67	General paralysis of the insane	3									1	1				1	3
68	Other forms of mental alienation	3	2							2	3						5
69	Epilepsy		1				1										1
71	Convulsions of infants	6	3	7	2												9
72	Chorea	1					1										1
73	Neuralgia and neuritis	1													1		1
74	Other diseases of the nervous system	2	4	1			1			2	2						6
76	Diseases of the ears	3		1	1					1							3
	Totals	116	93	29	12	4	9	9	10	17	19	20	32	32	13	3	209

III. Diseases of the Circulatory System

77	Pericarditis	1												1			1
78	Acute endocarditis	16	16	2				1	4	10	6	7	1	1			32
79	Organic diseases of the heart	51	37		1		3	5	1	8	14	10	22	13	11		88
80	Angina pectoris	6	5								2	2	4	1	2		11
81	Diseases of the arteries, atheroma, aneurysm, etc	13	10						2		2	3	8	8			23
82	Embolism and thrombosis	10	13	1					2	3	3	4	5	3	1	1	23
83	Diseases of the veins (varices, hæmorrhoids, phlebitis, etc.)	1	1					1			1						2
84	Diseases of the lymphatic system (lymphangitis, etc.)	3	3		1		3	1				1					6
85	Hæmorrhage; other diseases of the circulatory system		5								1	2	1		1		5
	Totals excluding Nos. 78 and 79	34	37	1	1		3	2	4	3	9	12	18	13	4	1	71

1920

CAUSE OF DEATH

(By Sex and Age)

		SEX		AGE IN YEARS													
		Male	Female	Under 1	1 to 2	3 to 4	5 to 9	10 to 19	20 to 29	30 to 39	40 to 49	50 to 59	60 to 69	70 to 79	80 to 89	90 to 99	Totals
	IV.—Diseases of the Respiratory System																
86	Diseases of the nasal fossæ	1						1									1
87	Diseases of the larynx		1								1						1
88	Diseases of the thyroid body		2							2							2
89	Acute bronchitis	9	9	12	3								1		2		18
90	Chronic bronchitis	5	3	1							1	2	2	2			8
91	Broncho-pneumonia	88	63	82	20	5	6	2	4	3	2	5	5	9	8		151
92	Pneumonia	63	42	18	11	2	2	6	9	21	11	5	10	8	2		105
93	Pleurisy	2	4	1			1			1	2				1		6
94	Pulmonary congestion, pulmonary apoplexy	3	9		1	1				1	1			5	3		12
95	Gangrene of the lung	1										1					1
96	Asthma	1	5	1					1		2				2		6
97	Pulmonary emphysema		1											1			1
98	Other diseases of the respiratory system (tuberculosis excepted)	3									3						3
	Totals, excluding Nos. 91 and 92	25	34	15	4	1	1	1	1	4	10	3	3	8	8		59
	V.—Diseases of the Digestive System																
100	Diseases of the pharynx	2	2	2		1			1								4
101	Diseases of the œsophagus		1									1					1
102	Ulcer of the stomach	1		1													1
103	Other diseases of the stomach (cancer ex.) (2 years and over)	1	3				1			1		1	1				4

103a	Other diseases of the stomach (cancer ex.) (under 2 yrs.)	11	10	21													21
104	Diarrhœa and enteritis (under 2 years)	69	55	113	11												124
105	Diarrhœa and enteritis (2 years and over)	5	3			3				1		2	1		1		8
108	Appendicitis and typhlitis	17	10	1		2	3	3	1	7	6	3	1				27
109	Hernia, intestinal obstruction	9	10	3	1		1		1	1	2	2	5	3			19
110	Other diseases of the intestines	4	2	2								1		1	2		6
111	Acute yellow atrophy of the liver		1						1								1
112	Hydatid tumor of the liver	1										1					1
113	Cirrhosis of the liver	2	1			1						2					3
114	Biliary calculi	1	6					1			2	1	3				7
115	Other diseases of the liver	2	4						1	1		1	3				6
116	Diseases of the spleen	1	1							1			1				2
117	Simple peritonitis (non-puerperal)	2	5	1		1	3				1	1					7
118	Other diseases of the digestive system (cancer and tuberculosis excepted)	1									1						1
	Totals, excluding Nos. 103a and 104	49	49	10	1	8	8	4	5	12	13	15	15	4	3		98
	VI.—Non-Venereal Diseases of the Genito-Urinary System and Annexa																
119	Acute nephritis	8	6	3	1	2			4	1	2			1			14
120	Bright's disease	31	23		2		1		4	5	12	10	6	14			54
122	Other diseases of the kidneys and annexa	5		2	1						1	1					5
123	Calculi of the urinary passages	1												1			1
124	Diseases of the bladder	1												1			1
126	Diseases of the prostate	6										2	3	1			6
129	Uterine tumor (non-cancerous)	..	6							3	2	1					6
130	Other diseases of the uterus		5						1		4						5
131	Cysts and other tumors of the overy		2						2								2
132	Salpingitis and other diseases of the female genital organs		7						2	5							7
	Totals, excluding Nos. 119 and 120	13	20	2	1				5	8	7	4	3	3			33

1920 CAUSE OF DEATH (By Sex and Age)	SEX		AGE IN YEARS													
	Male	Female	Under 1	1 to 2	3 to 4	5 to 9	10 to 19	20 to 29	30 to 39	40 to 49	50 to 59	60 to 69	70 to 79	80 to 89	90 to 99	Totals
VII.—The Puerperal State																
134 Accidents of pregnancy		8					1	3	4							8
135 Puerperal hæmorrhage		7						2	5							7
136 Other accidents of labor		9						1	7	1						9
137 Puerperal septichæmia		19					2	9	8							19
138 Puerperal albuminuria and convulsions		8						4	3	1						8
139 Puerperal phlegmasia alba dolens, embolus, sudden death		3						3								3
Totals		54					3	22	26	2						54
VIII.—Diseases of the Skin and of the Cellular Tissue																
142 Gangrene	4	3		1						1			2	3		7
144 Acute abscess	4	4	2	3							2	1				8
145 Other diseases of the skin and annexa	1	2	3													3
Totals	9	11	5	4				2		1	2	1	2	3		18
IX.—Diseases of the Bones and of the Organs of Locomotion																
146 Diseases of the bones (tuberculosis excepted)	7	5	1		1	2	6	1				1				12
147 Diseases of the joints (tuberculosis and rheumatism ex.)	2									1		1				2
Totals	9	5	1		1	2	6	1		1		2				14

	X.—Malformations																
150	Congenital malformations (stillbirths not included)	9	21	29	1												30
	XI.—Early Infancy																
151	Congenital debility, icterus and sclerema	94	66	160													160
152	Other causes peculiar to early infancy	35	22	57													57
	Totals	129	88	217													217
	XII.—Old Age																
154	Senility	8	11										1	6	8	4	19
	XIII.—External Causes																
155	Suicide by poison	3	1					1	1		1	1					4
157	Suicide by hanging or strangulation	3	1							3	1						4
158	Suicide by drowning		2							1		1					2
159	Suicide by firearms	3								1	1		1				3
160	Suicide by cutting or piercing instruments	3								1	1	1					3
165	Other acute poisonings	6	2		2				2	1	2	1					8
166	Conflagration	1											1				1
167	Burns (conflagration excepted)	8	6	1	7	3	1		1			1					14
168	Absorption of deleterious gases (conflagration excepted)	1							1								1
169	Accidental drowning	5	1				1	2	1	2							6
170	Traumatism by firearms	3	1						2	1	1						4
172	Traumatism by fall	10	2	1		1				4	2	2	1	1			12
174	Traumatism by machines	2							1			1					2
175a	Traumatism by automobiles	8	6			1	2	7		2		1		1			14
175b	Traumatism by railroads	3	1				1			2	1						4
175c	Traumatism by other crushing (landslides, etc.)	2	1			1					1	1					3
178	Excessive cold	1													1		1
181	Electricity (lightning excepted)	2							1	1							2
186	Other external violence	3								1		2					3
	Totals	67	24	2	6	9	4	11	9	18	13	12	4	2	1		91

1920 CAUSE OF DEATH (By Sex and Age)	SEX		AGE IN YEARS													
	Male	Female	Under 1	1 to 2	3 to 4	5 to 9	10 to 19	20 to 29	30 to 39	40 to 49	50 to 59	60 to 69	70 to 79	80 to 89	90 to 99	Totals
XIV.—Ill-defined Diseases																
189 Cause of death not specified or ill-defined	6	5	8	2						1						11
Totals	6	5	8	2						1						11
Grand Totals	1213	1057	625	145	70	107	107	180	251	202	167	195	139	71	10	2270